CITY OF OAKLAND
APPEAL FORM
FOR DECISION TO PLANNING COMMISSION, CITY COUNCIL OR HEARING OFFICER

PROJECT INFORMATION

Case No. of Appealed Project: PLN20-101

Project Address of Appealed Project: 1396 5th Street (004-0069-004-00)

Assigned Case Planner/City Staff: Peterson Vollmann, Project Planner

APPELLANT INFORMATION: East Bay Residents for Responsible Development

Printed Name: C/o Kelilah Federman Phone Number: (650) 589-1660

Mailing Address: 601 Gateway Boulevard, Suite 1000 Alternate Contact Number: _____

City/Zip Code South San Francisco, CA 94080 Representing: East Bay Residents for Responsible Development

Email: kfederman@adamsbroadwell.com

An appeal is hereby submitted on:

❑ **AN ADMINISTRATIVE DECISION (APPEALABLE TO THE CITY PLANNING COMMISSION OR HEARING OFFICER)**

YOU MUST INDICATE ALL THAT APPLY:

- ❑ Approving an application on an Administrative Decision
- ❑ Denying an application for an Administrative Decision
- ❑ Administrative Determination or Interpretation by the Zoning Administrator
- ❑ Other (please specify) _____

Please identify the specific Administrative Decision/Determination Upon Which Your Appeal is Based Pursuant to the Oakland Municipal and Planning Codes listed below:

- ❑ Administrative Determination or Interpretation (OPC Sec. 17.132.020)
- ❑ Determination of General Plan Conformity (OPC Sec. 17.01.080)
- ❑ Design Review (OPC Sec. 17.136.080)
- ❑ Small Project Design Review (OPC Sec. 17.136.130)
- ❑ Minor Conditional Use Permit (OPC Sec. 17.134.060)
- ❑ Minor Variance (OPC Sec. 17.148.060)
- ❑ Tentative Parcel Map (OMC Section 16.304.100)
- ❑ Certain Environmental Determinations (OPC Sec. 17.158.220)
- ❑ Creek Protection Permit (OMC Sec. 13.16.450)
- ❑ Creek Determination (OMC Sec. 13.16.460)
- ❑ City Planner's determination regarding a revocation hearing (OPC Sec. 17.152.080)
- ❑ Hearing Officer's revocation/impose or amend conditions (OPC Sec. 17.152.150 &/or 17.156.160)
- ❑ Other (please specify) _____

(Continued on reverse)

(Continued)

☒ **A DECISION OF THE CITY PLANNING COMMISSION (APPEALABLE TO THE CITY COUNCIL)** ☒ Granting an application to: **OR** ☐ Denying an application to:

YOU MUST INDICATE ALL THAT APPLY:

Pursuant to the Oakland Municipal and Planning Codes listed below:

- ☑ Major Conditional Use Permit (OPC Sec. 17.134.070)
- ☐ Major Variance (OPC Sec. 17.148.070)
- ☑ Design Review (OPC Sec. 17.136.090)
- ☑ Tentative Map (OMC Sec. 16.32.090)
- ☐ Planned Unit Development (OPC Sec. 17.140.070)
- ☐ Environmental Impact Report Certification (OPC Sec. 17.158.220F)
- ☐ Rezoning, Landmark Designation, Development Control Map, Law Change (OPC Sec. 17.144.070)
- ☐ Revocation/impose or amend conditions (OPC Sec. 17.152.160)
- ☐ Revocation of Deemed Approved Status (OPC Sec. 17.156.170)
- ☑ Other (please specify) CEQA Findings, MMRP, CEQA Analysis and Exemptions

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FOR ANY APPEAL: An appeal in accordance with the sections of the Oakland Municipal and Planning Codes listed above shall state specifically wherein it is claimed there was an error or abuse of discretion by the Zoning Administrator, other administrative decisionmaker or Commission (Advisory Agency) or wherein their/its decision is not supported by substantial evidence in the record, or in the case of Rezoning, Landmark Designation, Development Control Map, or Law Change by the Commission, shall state specifically wherein it is claimed the Commission erred in its decision. The appeal must be accompanied by the required fee pursuant to the City's Master Fee Schedule.

You must raise each and every issue you wish to appeal on this Appeal Form (or attached additional sheets). Failure to raise each and every issue you wish to challenge/appeal on this Appeal Form (or attached additional sheets), and provide supporting documentation along with this Appeal Form, may preclude you from raising such issues during your appeal and/or in court. However, the appeal will be limited to issues and/or evidence presented to the decision-maker prior to the close of the public hearing/comment period on the matter.

The appeal is based on the following: *(Attach additional sheets as needed.)*

Please see attached.

Supporting Evidence or Documents Attached. *(The appellant must submit all supporting evidence along with this Appeal Form;* however, the appeal will be limited evidence presented to the decision-maker prior to the close of the public hearing/comment period on the matter.

(Continued on reverse)

(Continued)

Keleth McSween

Signature of Appellant or Representative of Appealing Organization

3/10/21

Date

TO BE COMPLETED BY STAFF BASED ON APPEAL TYPE AND APPLICABLE FEE

APPEAL FEE: $_____

Fees are subject to change without prior notice. The fees charged will be those that are in effect at the time of application submittal. All fees are due at submittal of application.

Below For Staff Use Only

Date/Time Received Stamp Below:

Cashier's Receipt Stamp Below:

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March 12, 2021

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Re: Appeal to City Council re 1396 5th Street (Case File Number: PLN 20-101, APN 004-0069-004-00)

Dear Mr. Vollmann, Mr. Merkamp, Ms. Payne, City Clerk:

We are writing on behalf of East Bay Residents for Responsible Development ("East Bay Residents" or "Residents") to appeal the Oakland Planning Commission's March 3, 2021 approval of the 1396 5th Street Project (Application Number: PLN 20-101, APN 004-0069-004-00) ("Project") and March 4, 2021 Decision Letter, as well as the CEQA Analysis/Exemption Report ("CEQA Analysis") prepared for the Project by the City of Oakland ("City") pursuant to the California Environmental

Quality Act ("CEQA").[1] This Appeal is taken from the following actions, and is accompanied by payment of the required appeal fee of $2,685.15:

1. Planning Commission's March 3, 2021 approval of Staff's environmental determination and adoption/approval of the CEQA Findings for the Project.
2. Planning Commission's March 3, 2021 related approval of the Project, including Major Conditional Use Permit ("Major CUP"), Minor Conditional Use Permit ("Minor CUP"), and Design Review, subject the Conditions of Approval ("Conditions"), Vesting Tentative Parcel Map, and Mitigation Monitoring and Reporting Program ("MMRP").[2]
3. Planning Manager's March 4, 2021 Decision Letter.[3]

The Project, proposed by the Michaels Organization ("Applicant"), includes the proposed construction of 222 residential units in an approximately 216,666 square foot, eight-story podium style building. Without the Minor CUP, Major CUP, Tentative Parcel Map, and subsequent density bonus and waiver, the total authorized number of residential units at 1396 5th Street under existing zoning would be 171 units. The Project would include 41 vehicle parking spaces, 1 accessible space and 1 accessible van space, and 68 bicycle parking spaces.[4] The site is zoned as S-15W (Transit-Oriented Development Commercial Zone) within the West Oakland Specific Plan Subarea 2A of 7th Street Opportunity Area.[5] The Project is one block north of Interstate I-880, and 0.5 miles west of 1-980.[6] The Project is bordered by the Bay Area Rapid Transit ("BART") tracks to the north, Mandela Parkway to the west, 5th Street to the south, and Kirkham Street to the

[1] Pub. Resources Code ("PRC") §§ 21000 et seq.; 14 Cal. Code Regs. ("CCR" or "CEQA Guidelines") §§ 15000 et seq.
[2] March 4, 2021 Planning Commission Decision Letter for Application Number: PLN20-101; Property Location: 1396 5th Street; APN: 004-0069-004 ("Decision Letter"), Attachment A, p. 2.
[3] The Decision Letter incorrectly states that the Project was subject to a noticed public comment period, and that appeals would be limited to "issues and/or evidence presented to the Zoning Manager prior to the close of the previously noticed public comment period on the matter." Decision Letter, p. 1. The Project did not have a public comment period, and was approved by the Planning Commission, rather the Zoning Manager. Accordingly, this appeal is taken from the Planning Commission's decision.
[4] 1396 5th Street CEQA Analysis ("CEQA Analysis"), p. 9.
[5] *Id.* at p. 1.
[6] *Id.* at p. 5.

east within the City of Oakland.[7] The Project would also include a diesel-powered emergency generator.[8]

This Appeal letter, and Residents' attached March 3, 2021 comments to the Planning Commission,[9] demonstrate that the Planning Commission's decision to approve the Project violated CEQA, land use laws and the City's municipal codes, and was not supported by substantial evidence in the record.[10] Specifically, our prior comments, as well as the comments of local residents and members of the public that were submitted to the Planning Commission, identified several flaws in the City's environmental analysis, and provided new information and substantial evidence demonstrating that the Project will have new and more severe impacts than previously analyzed in the City's West Oakland Specific Plan and its Environmental Impact Report ("WOSP EIR"), the General Plan Land Use and Transportation Element and its EIR ("LUTE EIR") and the City of Oakland General Plan, and that these impacts will not be substantially or fully mitigated by the proposed Standard Conditions of Approval ("SCA"). These issues were not resolved by the Commission prior to its approval of the Project.

The City's CEQA Analysis purports to evaluate the Project's potential environmental impacts and consistency with these prior EIRs, and erroneously asserts that the Project is exempt from further CEQA review pursuant to a number of CEQA exemptions, including the Qualified In-fill Exemption under Public Resources Code Section 21094.5 and CEQA Guidelines Section 15183.3, and the Community Plan Exemption under CEQA Guidelines Section 15183. In the alternative, the CEQA Analysis asserts that it is a CEQA Addendum prepared pursuant to CEQA Guidelines Sections 15162, 15163, and 15164 to address minor technical changes and additions in the prior analysis that do not trigger the need for subsequent environmental review.[11] However, as explained more fully below, and in the comments of other local residents and members of the public that were presented to the Planning Commission, the CEQA Analysis fails to disclose, analyze, and mitigate the Project's new, peculiar, significant, and more severe

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[7] CEQA Analysis, p. 5
[8] *Id.* at 44.
[9] East Bay Residents' March 3, 2021 written comments to the Planning Commission are attached hereto as **Exhibit A** and incorporate by reference.
[10] This Appeal is also accompanied with payment of the appeal fee of $2685.15 in accordance with the City of Oakland Master Fee Schedule.
[11] CEQA Analysis, p. 2.

impacts on air quality, public health, hazards and hazardous materials, greenhouse gas emissions, and noise and vibration.

The CEQA Analysis failed to adequately disclose and mitigate these impacts, in violation of CEQA and land use requirements. The Commission failed to resolve these deficiencies, and failed to remand the Project to Staff to prepare an EIR, prior to approving the Project. The Planning Commission therefore lacked substantial evidence to support its decision to approve the Project and to adopt CEQA and land use findings for the Project. As explained herein, the City Council should vacate the Planning Commission's approvals and remand the Project to Staff to prepare a legally adequate EIR, before the Project can be presented to City decision makers for approval.[12]

This appeal letter and its attachments raises the issues that are contested on appeal, and addresses "issues and/or evidence" that was previously presented to the Planning Commission prior to its approval of the Project, as specified by Sections 17.134.070, 17.136.090, 16.04.100, 17.158.210, and 17.158.220 of the Oakland Planning Code and as allowed pursuant to CEQA and State land use laws.[13] We previously filed comments on the Project on March 3, 2021 with the assistance of assistance of technical expert Matt Hagemann and Paul E. Rosenfeld, Ph.D. of Soil Water Air Protection Enterprises ("SWAPE").[14] Local residents and members of the public submitted oral and written comments to the Planning Commission regarding the Project's hazardous materials onsite, air quality impacts, and density bonus issues. Residents' prior comments are incorporated by reference herein, and support this Appeal.

East Bay Residents urges the City Council to grant this Appeal and remand the Project to City Staff to prepare an EIR for the Project. The Project should not be rescheduled for a further public hearing until these issues have been addressed. East Bay Residents reserves the right to submit supplemental comments and

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[12] PRC § 21094.5(a); 14 CCR § 15164(e); see *Topanga Assn. for a Scenic Community v. County of Los Angeles* (1974) 11 Cal. 3d 506, 515.
[13] Oak. Planning Code §§ 17.134.070.A; 17.136.090; PRC § 21177(a) (allowing members of the public to submit additional evidence to the lead agency regarding a project's CEQA compliance "until the close of the final hearing on the Project.").
[14] East Bay Resident's March 3, 2021 written comments to the Planning Commission are attached hereto as **Exhibit A** and incorporate by reference.

evidence at any later hearings and proceedings related to the Project, in accordance with State law.[15]

I. STATEMENT OF INTEREST

East Bay Residents is an unincorporated association of individuals and labor organizations that may be adversely affected by the potential public and worker health and safety hazards and environmental and public service impacts associated with Project development. The association includes City of Oakland residents Luis Valencia, Erik Line, Jason Gumataotao, labor organizations UA Plumbers and Pipefitters Local 342, International Brotherhood of Electrical Workers Local 595, Sheet Metal Workers Local 104, Sprinkler Fitters Local 483, and their members and their families who live and/or work in the City of Oakland and Alameda County.

The individual members of East Bay Residents and its affiliated labor organizations live, work, and raise their families in Alameda County, including in the City of Oakland. They would be directly affected by the Project's environmental and health and safety impacts. Individual members may also work on the Project itself. They will therefore be first in line to be exposed to any health and safety hazards that may exist on the Project site.

The organizational members of East Bay Residents also have an interest in enforcing the City's planning and zoning laws and the State's environmental laws that encourage sustainable development and ensure a safe working environment for its members. Environmentally detrimental projects can jeopardize future jobs by making it more difficult and more expensive for business and industry to expand in the region, and by making it less desirable for businesses to locate and people to live there. Indeed, continued degradation can, and has, caused restrictions on growth that reduce future employment opportunities. Finally, East Bay Residents members are concerned about projects that present environmental and land use impacts without providing countervailing economic and community benefits.

II. LEGAL BACKGROUND

[15] Gov. Code § 65009(b); PRC § 21177(a); *Bakersfield Citizens for Local Control v. Bakersfield ("Bakersfield")* (2004) 124 Cal. App. 4th 1184, 1199-1203; *see Galante Vineyards v. Monterey Water Dist.* (1997) 60 Cal. App. 4th 1109, 1121.

CEQA has two basic purposes, neither of which is satisfied by the CEQA Analysis. First, CEQA is designed to inform decision makers and the public about the potential, significant environmental impacts of a project before harm is done to the environment.[16] The EIR is the "heart" of this requirement.[17] The EIR has been described as "an environmental 'alarm bell' whose purpose it is to alert the public and its responsible officials to environmental changes before they have reached ecological points of no return."[18]

To fulfill this function, the discussion of impacts in an EIR must be detailed, complete, and reflect a good faith effort at full disclosure."[19] An adequate EIR must contain facts and analysis, not just an agency's conclusions.[20] CEQA requires an EIR to disclose all potential direct and indirect, significant environmental impacts of a project.[21]

Further, CEQA directs public agencies to avoid or reduce environmental damage when possible by requiring imposition of mitigation measures and by requiring the consideration of environmentally superior alternatives.[22] If an EIR identifies potentially significant impacts, it must then propose and evaluate mitigation measures to minimize these impacts.[23] CEQA imposes an affirmative obligation on agencies to avoid or reduce environmental harm by adopting feasible project alternatives or mitigation measures.[24] Without an adequate analysis and description of feasible mitigation measures, it would be impossible for agencies relying upon the EIR to meet this obligation.

Under CEQA, an EIR must not only discuss measures to avoid or minimize adverse impacts, but must ensure that mitigation conditions are fully enforceable

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[16] 14 Cal. Code Regs. § 15002(a)(1) ("CEQA Guidelines"); *Berkeley Keep Jets Over the Bay v. Bd. of Port Comm'rs.* (2001) 91 Cal.App.4th 1344, 1354 ("*Berkeley Jets*"); *County of Inyo v. Yorty* (1973) 32 Cal.App.3d 795, 810.
[17] *No Oil, Inc. v. City of Los Angeles* (1974) 13 Cal.3d 68, 84.
[18] *County of Inyo v. Yorty* (1973) 32 Cal.App.3d 795, 810.
[19] CEQA Guidelines § 15151; *San Joaquin Raptor/Wildlife Rescue Center v. County of Stanislaus* (1994) 27 Cal.App.4th 713, 721-722.
[20] *See Citizens of Goleta Valley v. Board of Supervisors* (1990) 52 Cal.3d 553, 568.
[21] Pub. Resources Code § 21100(b)(1); CEQA Guidelines § 15126.2(a).
[22] CEQA Guidelines § 15002(a)(2) and (3); *Berkeley Jets,* 91 Cal.App.4th at 1354; *Laurel Heights Improvement Ass'n v. Regents of the University of Cal.* (1998) 47 Cal.3d 376, 400.
[23] Pub. Resources Code §§ 21002.1(a), 21100(b)(3).
[24] *Id.*, §§ 21002-21002.1.

through permit conditions, agreements or other legally binding instruments.[25] A CEQA lead agency is precluded from making the required CEQA findings unless the record shows that all uncertainties regarding the mitigation of impacts have been resolved; an agency may not rely on mitigation measures of uncertain efficacy or feasibility.[26] This approach helps "ensure the integrity of the process of decision by precluding stubborn problems or serious criticism from being swept under the rug."[27]

Following preliminary review of a project to determine whether an activity is subject to CEQA, a lead agency is required to prepare an initial study to determine whether to prepare an EIR or negative declaration, identify whether tiering or another appropriate process can be used for analysis of the project's environmental effects, or determine whether a previously prepared CEQA document could be used for the project, among other purposes.[28] The initial study must accurately describe the project, identify the environmental setting, identify environmental effects and show "some evidence" to support those conclusions, and a discussion of ways to mitigate the significant effects of the project, if any.[29] CEQA requires an agency to analyze the potential environmental impacts of its proposed actions in an EIR except in certain limited circumstances.[30] A negative declaration may be prepared instead of an EIR when, after preparing an initial study, a lead agency determines that a project "would not have a significant effect on the environment."[31] If the project has potentially significant environmental effects but those effects can be reduced to a level of insignificance by mitigation measures that the project's proponent has agreed to undertake, the lead agency may prepare a mitigated negative declaration ("MND").[32]

This appeal is filed pursuant to Title 17 of the Oakland Municipal Code Chapter 17.132.020 which provides[33]:

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[25] CEQA Guidelines § 15126.4(a)(2).
[26] *Kings County Farm Bur. v. County of Hanford* (1990) 221 Cal.App.3d 692, 727-28 (a groundwater purchase agreement found to be inadequate mitigation because there was no record evidence that replacement water was available).
[27] *Concerned Citizens of Costa Mesa, Inc. v. 32nd Dist. Agricultural Assn.* (1986) 42 Cal.3d 929, 935.
[28] CEQA Guidelines §§ 15060, 15063(c).
[29] CEQA Guidelines § 15063(d) (emphasis added).
[30] *See, e.g.,* Pub. Resources Code § 21100.
[31] *Quail Botanical Gardens v. City of Encinitas* (1994) 29 Cal.App.4th 1597; Pub. Resources Code § 21080(c).
[32] Pub. Resources Code § 21080 (c)(2); 14 CCR § 15064(f)(2).
[33] Oakland Municipal Code Chapter 17.132.020.

> Within ten (10) calendar days after the date of a decision by the City Planning Commission on an administrative appeal involving the provisions of Sections 17.104.040 or 17.114.150, an appeal from said decision may be taken to the City Council by any interested party. In event the last date of appeal falls on a weekend or holiday when city offices are closed, the next date such offices are open for business shall be the last date of appeal. Such appeal shall be made on a form prescribed by the City Planning Department and shall be filed with such Department and shall be accompanied by such a fee as specified in the City fee schedule. The appeal shall state specifically wherein it is claimed there was an error or abuse of discretion by the Director or wherein his or her decision is not supported by the evidence in the record. The appeal shall be accompanied by such information as may be required to facilitate review.

The Covid-19 Pandemic prompted the issuance of Emergency Order No. 3 of the City of Oakland which provides[34]:

> Since Permit Center is not open to the public at this time, the City is altering its appeal submittal requirements to respond to the lack of onsite staff for the duration that this order remains in effect
> …
> To initiate an appeal, the appellant **must** email: : a) the case planner, b) the Development Planning Manager (cpayne@oaklandca.gov) and c) the Zoning Manager (rmerkamp@oaklandca.gov) a signed copy of the Planning Bureau's appeal application form, as well as all supporting documents, no later than 4:00 p.m. on the final appeal date stated in the City's decision letter. Failure to submit the appeal form and supporting documents in a timely manner will result in the rejection of the appeal. Additional material may not be submitted at a later date. Within one (1) business day of the appeal submittal, the project's staff planner will create the appeal record in Accela and email the appellant with the record ID and invoice numbers. Appellant will then have five (5) calendar days from the date of appeal submittal to pay the appeal fee to the City's cashier. If the fifth (5th) calendar day falls on a

[34] Emergency Order No. 3 of the City of Oakland, Interim City Administrator/Director of the Emergency Operations Center (May 13, 2020) *available at:* https://cao-94612.s3.amazonaws.com/documents/CAO-Emergency-Order-COVID-No.-3-Build_Plan-Amd-Arizona-Border-Wall-P.pdf.

weekend or City holiday, appellant will have until the end of the following City business day to pay the appeal fee.

A. Subsequent CEQA Review

When a previously approved project for which an EIR or an MND has been prepared is modified, CEQA requires the lead agency to conduct subsequent or supplemental environmental review when one or more of the following events occur:

(a) Substantial changes are proposed in the project which will require major revisions of the environmental impact report;
(b) Substantial changes occur with respect to the circumstances under which the project is being undertaken which will require major revisions in the environmental impact report; or
(c) New information, which was not known and could not have been known at the time the environmental impact report was certified as complete, becomes available.[35]

In assessing the need for subsequent or supplemental environmental review, the lead agency must determine, on the basis of substantial evidence in light of the whole record, if one or more of the following events have occurred:

(1) Substantial changes are proposed in the project which will require major revisions of the previous EIR due to the involvement of new significant effects or a substantial increase in the severity of previously identified effects;
(2) Substantial changes occur with respect to the circumstances under which the project is undertaken which will require major revisions of the previous EIR due to the involvement of new significant environmental effects or a substantial increase in the severity of previously identified significant effects; or
(3) New information of substantial importance, which was not known and could not have been known with the exercise of reasonable diligence at the time the previous EIR was certified as complete or the negative declaration was adopted, shows any of the following:
    (A) The project will have one or more significant effects not discussed in the previous EIR or negative declaration;

[35] Pub. Resources Code § 21166; CEQA Guidelines § 15162.

(B) Significant effects previously examined will be substantially more severe than shown in the previous EIR;
(C) Mitigation measures or alternatives previously found not to be feasible would in fact be feasible, and would substantially reduce one or more significant effects of the project, but the project proponents decline to adopt the mitigation measure or alternative; or
(D) Mitigation measures or alternatives which are considerably different from those analyzed in the previous EIR would substantially reduce one or more significant effects on the environment, but the project proponents decline to adopt the mitigation measure or alternative.[36]

Only where ***none*** of the conditions described above calling for preparation of a subsequent or supplemental EIR have occurred may the lead agency consider preparing a subsequent negative declaration, an addendum or no further documentation.[37] For Addendums specifically, which is one of several CEQA exemption/streamlining avenues that the City claims is applicable to the Project, CEQA allows Addendums to a previously certified EIR if minor changes or additions are necessary but none of the conditions described in Section 15162 calling for preparation of a subsequent EIR have occurred.[38] In any case, the decision must be supported by substantial evidence.[39]

"Substantial evidence" under CEQA means "enough relevant information and reasonable inferences from this information that a fair argument can be made to support a conclusion, even though other conclusions might also be reached."[40] Further, "[w]hether a fair argument can be made that the project may have a significant effect on the environment is to be determined by examining the whole record before the lead agency. Argument, speculation, unsubstantiated opinion or narrative, evidence which is clearly erroneous or inaccurate, or evidence of social or economic impacts which do not contribute to or are not caused by physical impacts on the environment does not constitute substantial evidence."[41] Substantial evidence "shall include facts, reasonable assumptions predicated upon facts, and expert opinion supported by facts."[42] Here, the Planning Commission's decision to

[36] CEQA Guidelines §§ 15162(a)(1)-(3).
[37] CEQA Guidelines § 15162(b).
[38] CEQA Guidelines § 15164; CEQA Analysis, p. 9.
[39] *Id.* §§ 15162 (a), 15164(e), and 15168(c)(4).
[40] CEQA Guidelines § 15384(a).
[41] *Id.*
[42] *Id.* at § 15384(b).

approve the Project violated CEQA, land use laws and the City's municipal codes, and was not supported by substantial evidence in the record.

B. CEQA Infill Streamlining Exemptions

The City seeks to rely on narrow CEQA exemptions that allow approval of projects without an EIR in very narrow circumstances, CEQA Section 21094.5 and CEQA Guidelines Section 15183 (Community Plan) and 15183.3 (Qualified Infill)[43] (collectively, the "Infill Exemptions"). The Infill Exemptions provide that, if an EIR was previously certified for a planning level decision of a city or county, subsequent CEQA review may be limited to evaluating a project's effects on the environment that are either (A) specific to the project or to the project site and were not addressed as significant effects in the prior environmental impact report or (B) where substantial new information shows the effects will be more significant than described in the prior environmental impact report.[44] The Infill Exemptions allow a lead agency to forego preparation of an EIR if neither of these situations occur, or if the lead agency determines that uniformly applicable development policies or standards adopted by the agency will substantially mitigate the new effects. A lead agency's determination pursuant to this section must be supported by substantial evidence.[45]

III. THE COMMISSION'S RELIANCE ON PREVIOUS ENVIRONMENTAL ANALYSIS AND CEQA EXEMPTIONS VIOLATED CEQA

A. The Project is Not Consistent with CEQA Addendum and Infill Streamlining Exemption Requirements

The City's reliance on CEQA Addendum and Infill Streamlining Exemptions to approve the Project without preparing an EIR is misplaced for several reasons. First, the CEQA Analysis does not simply consist of "minor changes or additions are necessary" as is allowed under the Addendum provision. Rather, it includes an entirely new substantive analysis for a large development project which was not specifically analyzed in the WOSP EIR, LUTE EIR, or General Plan. The City must discontinue this practice, which clearly violates CEQA. Moreover, as explained

[43] Decision Letter, Attachment A, p. 9.
[44] Pub. Res. Code § 21094.5(a); 14 Cal. Code Regs. § 15183.3(a), (c).
[45] Pub. Res. Code § 21094.5(a).

below, the Project will result in new or more severe significant impacts than analyzed in previous EIRs that require mitigation that is not included in the CEQA Analysis, the SCAs, or the MMRP. CEQA requires that the City's decision to forego preparation of an EIR, and reliance on an Addendum, must be supported by factual evidence in the record.[46] In this case, the City's decision not to prepare a subsequent or supplemental EIR for the Project is not supported by substantial evidence because of these unanalyzed and/or unmitigated impacts.

The City also relies on narrow CEQA exemptions that are inapplicable or not supported by substantial evidence. Specifically, the City relies on CEQA Guidelines Sections 15183 (Community Plan)[47] and 15183.3 (Qualified Infill)[48] for Project approval. The exemptions apply only when a Project does not have impacts peculiar to the proposed project that are new or more significant than previously analyzed or can be substantially mitigated by uniformly applicable development policies or standards.

The Project fails to meet these requirements for three key reasons. First, the Project's health risks to local sensitive receptors from exposure to toxic air contaminants ("TAC") emissions constitute significant impacts, and the Commission failed to require binding mitigation to substantially mitigate these impacts or to reduce them to less than significant levels.[49] Second, the Project will have significant hazards and hazardous materials impacts on local sensitive receptors that the CEQA Analysis fails to disclose, and fails to adequately mitigate.[50] Third, the Project is inconsistent with allowable density. These impacts are not adequately mitigated by the SCAs from the WOSP EIR, LUTE EIR, or General Plan. In order to substantially (or fully) mitigate these impacts, the City must adopt considerably stronger and different mitigation than the measures included in the SCAs.

For these reasons, the Commission lacked substantial evidence to support its findings that the Project would not have any significant, unmitigated impacts on the environment or on the health and welfare of local residents or other members of the public. The City Council cannot uphold the Commission's unsupported findings. The City Council should vacate the Commission approvals and require the City to

[46] *Id.* §§ 15162 (a), 15164(e), and 15168(c)(4).
[47] CEQA Guidelines Section 15183.
[48] CEQA Guidelines Section 15183.3.
[49] Exhibit A, SWAPE Comments, p. 16.
[50] *Id.* at 2.

provide detailed analysis of the Project's impacts in a subsequent or supplemental EIR.

B. The Project Has Significant, Unmitigated On-Site Hazards

The CEQA Analysis concludes, without substantial evidence, that existing soil and groundwater contamination onsite is less than significant.[51] But, the site is identified as a Cleanup Program Site on the State Water Resources Control Board ("SWRCB") GeoTracker Database due to previous groundwater contamination.[52] The SWRCB cleared the site for use as a "vacant lot", but the site is not up to residential standards.[53] The site's SWRCB record shows that residual current subsurface contamination at the site exceeds residential screening levels.[54] The Applicant proposes to develop the site for residential use, despite the fact that the site fails to meet the health-based standards necessary for residential development. This is a potentially significant impact that is peculiar to the Project site which the CEQA Analysis fails to disclose or adequately mitigate.

SWAPE similarly determined that the CEQA Analysis fails to disclose significant contamination that remains on the Project site in excess of residential screening levels.[55] PAHs at existing levels found in the soil may be reasonably expected to cause cancer.[56] TPH compounds at existing levels found in the soil may affect the central nervous system while others can cause effects on the blood, immune system, lungs, skin, and eyes.[57] As SWAPE explained, the site's existing Phase II Subsurface Investigation Work Plan[58] contradicts the unsupported conclusions articulated in the CEQA Analysis, and demonstrates that there are significant levels of existing contamination at the site which pose a potentially significant health risk to the public.[59] The CEQA Analysis also fails to describe or comply with a critical condition of site's existing closure which requires that "if

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[51] CEQA Analysis, p. 62.
[52] Exhibit A, Comment Letter, p. 17.
[53] Exhibit A, SWAPE Comments, p. 2.
[54] Exhibit A, Comment Letter, p. 18.
[55] Exhibit A, SWAPE Comments, p. 2.
[56] *Id.*
[57] *Id.*
[58] Citadel Environmental, Phase II subsurface Investigation Work Plan – Draft, (May 13, 2016) *available* at: https://dehpra.acgov.org/LOP/Lopinfo/ReadFile?filePath=%5C%5Cac01fs8600.acgov.org%5CLOPIMAGE%5CPDF%5CRO0002896%5CCORRES_L_2016-06-23_2.pdf.
[59] Exhibit A, SWAPE Comments, p. 2.

there is a proposed change in land use to any residential, or conservative land use, or if any redevelopment occurs," the Alameda County Department of Environmental Health ("ACDEH") must be notified for reevaluation of the Project site conditions.[60]

SWAPE concluded that, without proper agency consultation and cleanup to residential standard prior to construction, construction workers, nearby receptors, and future residents of the Project may be exposed to unhealthful levels of contamination released during the Project's disturbance of contaminated soil or groundwater, or released from vapor intrusion during Project operation.[61] SWAPE further determined that the proposed mitigation measure SCA-HAZ-1 is deficient because it fails to address the site closure standards necessary for residential development.[62] As SWAPE explained, SCA-HAZ-1 only addresses containment of contamination that is dug up during Project construction, but does not address remediation of existing contamination to residential levels.[63] Moreover, SCA-HAZ-1 would improperly allow on-site construction workers to be directly exposed to known contamination, rather than requiring contamination to be removed prior to initiating Project construction. SCA-HAZ-1 therefore fails to mitigate the potentially significant impacts posed by the site's existing soil and groundwater contamination, and fails to comply with CEQA. Far more is required to substantially mitigate the Project's potentially significant contamination impacts than the SCAs proposed by the City.

SWAPE's analysis determined that "[a]n EIR is necessary for the Project to disclose known soil and groundwater contamination at the Project site. An EIR is also necessary to document that ACDEH was notified of the Project and the proposed land use change from commercial to residential and to document their approval for redevelopment activities."[64] Once the full extent of the site's contamination is disclosed to the public in an EIR, the City must also adopt all feasible mitigation measures to reduce contamination impacts to less than significant levels before the Project can be approved.[65]

The CEQA Analysis failed to adequately disclose and mitigate hazards and hazardous waste impacts, in violation of CEQA and land use requirements. The

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[60] *Id*. at pp. 2-3.
[61] Exhibit A, SWAPE Comments, p. 2.
[62] Exhibit A, SWAPE Comments, p. 3.
[63] Exhibit A, SWAPE Comments, p. 3.
[64] *Id.*
[65] See e.g. PRC § 21081(a)(1).
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Commission failed to resolve these deficiencies, and failed to remand the Project to Staff to prepare an EIR, prior to approving the Project. The Planning Commission therefore lacked substantial evidence to support its decision to approve the Project and its adoption of CEQA findings for the Project, and the CEQA Analysis fails to satisfy CEQA.

C. The Project Has Significant, Unmitigated Air Quality Impacts and Health Risk from Construction and Operational Emissions

The CEQA Analysis concludes that the Project's air quality impacts would be less than significant with implementation of SCAs. This conclusion directly contradicts the WOSP EIR's own conclusion that construction-related and operational air pollutant emissions and operational toxic air contaminants to be significant and unavoidable.[66] Further, the WOSP EIR concluded that it was not possible, at the time, to assess the significance of construction-related criteria air pollutant emissions without modeling each individual project. Thus, the CEQA Analysis admits that the Project will have significant site-specific emissions impacts that are peculiar to the Project site which were not analyzed in the WOSP EIR. This is precisely the situation in which the City's claimed CEQA exemptions do not apply. And, because the City failed to conduct a project-specific analysis of emissions in the CEQA Analysis, its conclusion that "project construction related air impacts would be less than significant consistent with the findings of the WOSP EIR"[67] is not supported by any substantial evidence.

The CEQA Analysis incorrectly relies on the WOSP EIR, LUTE EIR, and General Plan to avoid analysis and mitigation of potentially significant criteria pollutant and public health impacts. The CEQA Analysis then fails to estimate and compare the Project's emissions to the applicable BAAQMD thresholds, in violation of CEQA.[68] Thus, the CEQA Analysis' conclusion that the Project's air quality and health risk impacts are consistent with the WOSP EIR and would be less than

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[66] CEQA Analysis, p. 42.
[67] Exhibit A, SWAPE Comments, p. 11; CEQA Analysis, p. 44.
[68] *Sierra Club v. County of Fresno* (2018) 6 Cal.5th 502, 525; 14 CCR § 15064.7(a); *Comtys. for a Better Env't v. Cal. Resources Agency* (2002) 103 Cal.App.4th 98, 110-111 (when an impact exceeds significance threshold, e agency must disclose that the impact is significant); *Schenck v. County of Sonoma* (2011) 198 Cal.App.4th 949, 960 (County applies BAAQMD's "published CEQA quantitative criteria" and "threshold level of cumulative significance"); *CBE v. SCAQMD* (2010) 48 Cal.4th at 327 (impact is significant because exceeds "established significance threshold for NOx … constitute[ing] substantial evidence supporting a fair argument for a significant adverse impact"). .

significant, is not supported by substantial evidence, and does not support approval of the Project.[69]

1. Criteria Pollutants Were Not Adequately Addressed or Mitigated

SWAPE determined that the CEQA Analysis failed to analyze the Project's construction-related and operational criteria air pollutant emissions.[70] SWAPE's review of the CEQA Analysis' CalEEMod output files used to calculate GHG emissions contains errors and unsupported input parameters. For example, SWAPE explained that the City's modeling relied on BAAQMD's criteria pollutant screening size, which only applies to operational emissions, and therefore did not analyze the Project's construction emissions.[71] SWAPE further explained that the City's modeling relied on unsubstantiated reductions in solid waste generation rates, underestimated operational vehicle trip rates, unsubstantiated changes to wastewater treatment system percentages, and failed to model emissions related to the Project's 1,600-SF of "High Turnover (Sit Down Restaurant)."[72] As a result, the CEQA Analysis' emissions analysis is unsupported by facts in the record, and its resulting conclusion that air quality impacts would be less than significant is not supported by substantial evidence.

SWAPE prepared an updated CalEEMod model which determined that the Project's construction-related ROG and NOx emissions would exceed applicable BAAQMD thresholds.[73] These are significant criteria pollutant impacts which must be disclosed and mitigated in an EIR.

2. The Project Has Significant Health Risk Impacts Which the CEQA Analysis Failed to Disclose and Mitigate

The CEQA Analysis omits a health risk analysis ("HRA") as required by SCA-AIR-4 "to reduce the potential health risk due to exposure to toxic air contaminants."[74] The CEQA Analysis therefore fails to make a reasonable effort to connect the Project's operational TAC emissions to the potential health risks posed

[69] Exhibit A, SWAPE Comments, p. 12.
[70] *Id.* at pp. 9-10.
[71] *Id.* at p. 11.
[72] *Id.* at pp. 6-11.
[73] Exhibit A, SWAPE Comments, p. 13.
[74] CEQA Analysis, Attachment A, p. A-9.

to nearby receptors, as required by CEQA.[75] As such, the CEQA Analysis is inconsistent with CEQA's requirement to correlate the increase in emissions generated by the Project with the potential adverse impacts on human health, and to disclose those impacts to the public prior to approving the Project.[76] An HRA was also not provided, as required by SCA-AIR-5 here, where a project may include an emergency diesel generator.[77]

SWAPE conducted an HRA which analyzed the health risk posed by construction-related and operational emissions, and found an excess cancer risk of approximately 82 in one million over the course of a residential lifetime (30 years), utilizing age sensitivity factors.[78] This is more than double the WOSP EIR's estimate of 32 in one million, and substantially exceeds BAAQMD's significance threshold of 10 in one million, resulting in a highly significant impact health risk impact. SWAPE's screening-level HRA demonstrated that construction and operation of the Project could result in a potentially significant health risk impact, when correct exposure assumptions and up-to-date, applicable guidance are used, which is not substantially mitigated by the SCAs.[79] SWAPE's modeling is shown in the figure below.

[75] Exhibit A, SWAPE Comments, pp. 16-17.
[76] Exhibit A, SWAPE Comments, p. 17.
[77] CEQA Analysis, p. 44.
[78] Exhibit A, SWAPE Comments, p. 19.
[79] *Id.* at p. 22.

The Closest Exposed Individual at an Existing Residential Receptor

Activity	Duration (years)	Concentration (ug/m3)	Breathing Rate (L/kg-day)	Cancer Risk without ASFs*	ASF	Cancer Risk with ASFs*
Construction	0.25	0.3549	361	4.1E-07	10	4.1E-06
3rd Trimester Duration	***0.25***			***4.1E-07***	***3rd Trimester Exposure***	***4.1E-06***
Construction	0.69	0.3549	1090	3.4E-06	10	3.4E-05
Operation	1.31	0.09015	1090	1.6E-06	10	1.6E-05
Infant Exposure Duration	***2.00***			***5.1E-06***	***Infant Exposure***	***5.1E-05***
Operation	14.00	0.09015	572	7.8E-06	3	2.3E-05
Child Exposure Duration	***14.00***			***7.8E-06***	***Child Exposure***	***2.3E-05***
Operation	14.00	0.09015	261	3.6E-06	1	3.6E-06
Adult Exposure Duration	***14.00***			***3.6E-06***	***Adult Exposure***	***3.6E-06***
Lifetime Exposure Duration	**30.00**			**1.7E-05**	**Lifetime Exposure**	**8.2E-05**

* We, along with CARB and BAAQMD, recommend using the more updated and health protective 2015 OEHHA guidance, which includes ASFs.

The Planning Commission's finding that the Project's health risk impacts were adequately disclosed and mitigated by the CEQA Analysis was therefore not supported by substantial evidence. Since SWAPE's screening-level HRA indicates a potentially significant impact and the SCAs require HRAs, the City must prepare an EIR with an HRA which makes a reasonable effort to connect the Project's air quality emissions and the potential health risks posed to nearby receptors.[80] SWAPE further explained that the City should prepare an updated, quantified air pollution model which adequately and accurately evaluates air quality impacts associated with both Project construction and operation, since those emissions estimates provide the foundation for an accurate HRA.[81]

3. Additional Mitigation is Necessary to Reduce Health Risk Impacts from Gaseous TACs to the Greatest Extent Feasible.

The Project is subject to PM2.5 concentrations that exceed the threshold of 0.3 ug/m3.[82] In addition, the project site is located approximately 380 feet from a

[80] *Id.*
[81] *Id.*
[82] CEQA Analysis, p. 45.

stationary source.[83] The CEQA Analysis states that "cumulative conditions and project-level impacts related to the emissions of TACs during project operations would be significant and unavoidable."[84] Further, the CEQA Analysis states that "[t]here are no known feasible technologies or site planning considerations that have been shown to reduce risks of gaseous TACs,[85] and that, for this reason, impacts related to gaseous TACs would also be significant and unavoidable, since SCA requirements are not sufficient to reduce the risk to acceptable levels."[86] This statement is not supported by substantial evidence. Mitigation measures could and should have been considered as feasible to reduce the impacts to less than significant.

The WOSP EIR identifies SCAs to minimize impacts to air quality, but recognizes that they cannot with certainty reduce risks to an acceptable level.[87] CEQA requires that mitigation measures be "fully enforceable through permit conditions, agreements, or other legally binding instruments."[88] Further, mitigation measures that are vague or so undefined that it is impossible to evaluate their effectiveness are legally inadequate.[89] The SCA proposed to reduce air quality impacts to less than significant are so vague and undefined that it is impossible to evaluate their effectiveness, they are therefore inadequate. An EIR is required to adequately mitigate impacts to air quality from construction and operation of the Project.

4. Diesel-Powered Emergency Generator Impacts Have Not Been Adequately Addressed or Mitigated

The Project may include an emergency diesel generator.[90] Diesel-powered generators emit diesel particulate matter ("DPM"), a TAC. The CEQA Analysis determined that the project-level impacts related to emissions of TACs during Project operations would be significant and unavoidable, consistent with WOSP Air-9, and thus no further analysis is required. This statement is not supported by

[83] *Id.*
[84] *Id.*
[85] *Id.*
[86] CEQA Analysis, p. 45.
[87] CEQA Analysis, p. 45.
[88] CEQA Guidelines, § 15126.4(a)(2).
[89] *San Franciscans for Reasonable Growth v. City & County of San Francisco* (1984) 151 Cal.App.3d 61, 79.
[90] CEQA Analysis, p. 44.

substantial evidence. The WOSP EIR requires mitigation measure AIR-9 for applicants for projects that would include backup generators to prepare a Risk Reduction Plan for City review and approval.[91] The Risk Reduction Plan "shall reduce cumulative localized cancer risks to the maximum feasible extent."[92] The Project's reliance on the Risk Reduction Plan for WOSP is misplaced. The Applicant must prepare a Risk Reduction Plan for City review and approval for *this* Project.

The CEQA Analysis relies on SCA-AIR-5 which requires that Applicants prepare a Health Risk Assessment in accordance California Air Resources Board ("CARB") and Office of Environmental Health and Hazard Assessment ("OEHHA") requirements to determine the health risk associated with proposed stationary sources of pollution in the project.[93] Alternatively, the SCA requires the Applicant to implement health risk reduction measures including the selection of non-diesel generators or the use of diesel generators with an EPA-certified Tier 4 engine.[94] The CEQA analysis provides that this is required, but then states that "[e]xisting and new diesel generators shall meet CARB's Tier 4 emission standards, if feasible."[95] This does not constitute a mandatory mitigation measure. "Mitigation measures must be fully enforceable though permit conditions, agreements, or other legally binding instruments."[96] Further, CEQA prohibits deferring identification of mitigation measures when there is uncertainty about the efficacy of those measures.[97] An agency may only defer formulation of mitigation measures when there is a clear commitment to mitigation that will be measured against specific performance criteria.[98]

The CEQA Analysis is therefore inconsistent with the WOSP because it fails to incorporate all mitigation required under the WOSP to reduce health risks to the

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[91] CEQA Analysis, p. D-2; West Oakland Specific Plan Environmental Impact Report ("WOSP EIR"), p. 4.2-44.
[92] WOSP EIR, p. 2-13.
[93] WOSP EIR, p. 4.2-44.
[94] CEQA Analysis, p. A-8.
[95] *Id.* at p. 10.
[96] CEQA Guidelines, § 15126.4(a)(2).
[97] 14 C.C.R. § 15126.4(a)(1)(B); *City of Marina v. Board of Trustees of the California State University* (2006) 39 Cal.4th 341, 366; *Sundstrom v. County of Mendocino* (1988) 202 Cal.App.3d 296, 308–309.
[98] *POET, LLC v. California Air Res. Bd.* (2013) 218 Cal.App.4th 681, 736, 739–740, as modified on denial of reh'g (Aug. 8, 2013), review denied (Nov. 20, 2013); see also *Preserve Wild Santee v. City of Santee* (2012) 210 Cal.App.4th 260, 281 (EIR deficient for failure to specify performance standards in plan for active habitat management of open space preserve).
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surrounding community. In addition, the health risk impact disclosed by SWAPE from DPM emissions during construction presents new information showing a significant impact, which the WOSP explained could not have been known at the Project level, and which was not discussed in the WOSP EIR.[99] Therefore, an EIR is required for the Project and the Planning Commission's reliance on the CEQA Analysis for Project approval was not supported by substantial evidence.

5. The CEQA Analysis Fails to Implement All Feasible Mitigation to Reduce Odor Impacts

The CEQA Analysis determined that odor impacts are significant and unavoidable. SWAPE concurred that odor impacts are significant.[100] But the statement that the odor impacts are unavoidable is not supported by substantial evidence.[101] Mitigation is available to reduce odor impacts including: zoning to provide buffer from receptors; establishment of zoning buffer zones, such as vegetated areas or wall barriers, around mobile sources; operational hour limitations for truck deliveries and others addressed in SWAPE's expert comments.[102] These mitigation measures were not adequately considered by the Commission prior to approving the Project. The City's determination that odor impacts are significant and unavoidable is not supported by substantial evidence. Therefore, the Planning Commission's decision to approve the Project violated CEQA and was not supported by substantial evidence in the record.

6. The City Failed to Adopt All Feasible Mitigation to Reduce Significant Health Risk Impacts to the Greatest Extent Feasible

The CEQA Analysis failed to adequately mitigate significant health risk impacts.[103] Due to the WOSP EIRs' finding that health risk impacts would be significant and unavoidable, and the Project's exacerbating factors, including the Project's use of a diesel backup generator, and proximity to the I-880 and approximately 380 feet from a stationary source, the City was required not only to substantially mitigate the Project's health impacts (which the SCAs fail to do), but

[99] Exhibit A, SWAPE Comments, p. 21.
[100] *Id.*
[101] *Id.*
[102] *Id.* at 22.
[103] *Id.*

to adopt all feasible mitigation to reduce the Project's health risk to the greatest extent feasible.[104]

SWAPE determined that the CEQA Analysis' conclusion that the Project's health risk impacts are significant and unavoidable is "unsubstantiated."[105] To comply with CEQA, the City should have required additional mitigation to reduce health impacts to people living at and near the Project site. SWAPE determined that additional, feasible mitigation, implemented at other Southern California projects adjacent to freeways, could be required for the Project to further reduce health risk impacts. The measures include[106]:

- Disclose to residents the potential health impacts from living in proximity to the I-880 freeway;
- Installation, use, and maintenance of filtration systems with at least a Minimum Efficiency Reporting Value (MERV) 15;
- Lead Agency verification and certification of the implementation the filtration systems;
- Lead Agency verification of maintenance to include manufacturer's recommended filter replacement schedule;
- Disclosure to residents that opening windows will reduce the health-protectiveness of the filter systems.

SWAPE identified additional mitigation measures that were not analyzed or included in the CEQA Analysis that may further reduce significant health risk impacts to less than significant, including:

- Establishment of zoning buffer zones, such as vegetated areas or wall barriers, around mobile sources;
- Operational hour limitations for truck deliveries;
- Alternative vehicle routing (i.e. re-route truck traffic by adding alternate access for truck traffic or by restricting truck traffic on certain sensitive routes);

[104] PRC § 21081(a); see 14 C.C.R. §§ 15090(a), 15091(a), 15092(b)(2)(A), (B); *Covington v. Great Basin Unified Air Pollution Control Dist.* (2019) 43 Cal.App.5th 867, 883.
[105] Exhibit A, SWAPE Comments, p. 16.
[106] *Id.* at 18.

- Truck parking restrictions (i.e. establish a buffer zone between truck parking and new housing or restrict truck parking in certain areas to specific hours of the day);
- Alternative mobile source fuel requirements;
- Improve road infrastructure to facilitate improved traffic flow without inducing capacity through:
    - Signal synchronization;
    - Locations of on- and off-ramps for freeways;
    - Assessment of speed limits and roadway capacities;
- Provide mechanisms for communication between carriers and operators at facilities such to manage demand and flow at facilities with heavy diesel traffic;
- Require the installation of electrical hookups at loading docks and the connection of trucks equipped with electrical hookups to eliminate the need to operate diesel-powered TRUs at the loading docks;
- Improve alternative transportation options such as biodiesel or CNG-powered buses, light rail, community shuttles, etc.
- Require new development to incorporate:
    - Bicycle parking, bicycle infrastructure (i.e. bike lanes and bike racks), and "end-of-trip" facilities;
    - Pedestrian infrastructure (i.e. pedestrian network, minimize barriers, etc.);
    - Traffic calming measures;
    - Bus shelters on the perimeter of development;
    - Parking measures (paid parking, shared parking among land uses, and preferential parking for alternative-fueled vehicles, etc.);
    - Incentives for ridesharing and use of alternative-fueled vehicles (carpool lanes, electric vehicle charging stations, car-share programs, etc.);
    - Smart landscaping utilizing vegetation which requires minimal maintenance; and
    - Electrical outlets at building exterior areas and complimentary electric lawnmowers for residents.

SWAPE concluded that these measures offer a cost-effective, feasible way to incorporate lower-emitting design features into the proposed Project, which subsequently, reduce TAC emissions released during Project construction and

operation.[107] The Planning Commission failed to respond to any of these proposed measures.

CEQA requires mitigation measures to be enforceable through binding conditions.[108] CEQA also requires agencies to conclude that an impact is less than significant only after it produces rigorous analysis and concrete substantial evidence justifying the finding. The proposed SCAs thus violate CEQA by failing to show not only how they will achieve reduction below the threshold of significance, but what is the level of reduction they set to achieve. Moreover, many of the measures include phrases such as "where feasible", and "if such measures are feasible", making them completely unenforceable, in violation of CEQA.[109]

Due to unanalyzed and unmitigated health risk impacts, the Planning Commission's decision to approve the Project without preparing a subsequent EIR for the Project was contrary to law and not supported by substantial evidence.

D. The Project Has Significant, Unmitigated Greenhouse Gas Emissions Impacts

The Project is inconsistent with the City of Oakland's Energy and Climate Action Plan ("ECAP"). SWAPE reviewed the Project's CALEEMod output files provided in CEQA Analysis Attachment F, and determined that "several of the values inputted into the model are not consistent with information disclosed in the Analysis and associated documents."[110] The emissions calculated for the CEQA Analysis are underestimated.[111] As such, the determination that GHG emissions are less than significant is not supported by substantial evidence and is not consistent with the ECAP.

SWAPE conducted an updated CALEEMOD model and found the Project's construction-related ROG and NOx emissions exceed the applicable BAAQMD thresholds.[112] SWAPE's model demonstrates that the Project would result in a

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[107] Exhibit A, SWAPE Comments, pp. 23-24.
[108] 14 CCR § 15126(a)(2).
[109] CEQA Analysis, pp. A-22 – A-23.
[110] Exhibit A, SWAPE Comments, p. 4.
[111] *Id.*
[112] Exhibit A, SWAPE Comments, p. 13.

potentially significant air quality impact that was not previously identified or addressed in the Analysis. The figure below shows SWAPE's calculations[113].

Model	ROG	NO_x
SWAPE Construction	280.4049	122.7616
BAAQMD Threshold (lbs/day)	**54**	**54**
Threshold Exceeded?	***Yes***	***Yes***

The CEQA Checklist states that the Project will implement SCAs to reduce GHGs, but also states that the WOSP EIR did not identify any mitigation measures related to GHGs, and none are required for the proposed project.[114] "No GHG Reduction Plan under SCA-GHG-1: Greenhouse Gas (GHG) Reduction Plan (#42) is required."[115] The GHG emissions from the Project are significant and unmitigated. SWAPE determined that compliance with Title 24 would not constitute sufficient mitigation.[116] "Simply because the 2019 Title 24 standards expect a reduction in building energy consumption does not guarantee that any measures will be implemented and result in actual reductions locally on the Project site." Further, "[a]bsent additional information demonstrating that these reductions would be achieved through the implementation, monitoring, and enforcement of energy-related mitigation measures, [SWAPE is] unable to verify the revised energy use values inputted into the model."[117] Therefore, the CEQA Analysis provides GHG modeling that is not based on substantial evidence, and its conclusion that the Project's potentially significant GHG impacts do not require mitigation is not supported by substantial evidence.

The City may be relying on CEQA Guidelines Section 15064(h)(3) in determining the less than significant impact. CEQA Guidelines Section 15064(h)(3) provides that Projects that are consistent with the CAP, may be found to cause a less than significant impact under CEQA.[118] In *Center for Biological Diversity v. Department of Fish and Wildlife*, the California Supreme Court held that Department of Fish and Wildlife's "failure to provide substantial evidentiary

[113] *Id.*
[114] CEQA Analysis, p. 59.
[115] CEQA Analysis, p. 59.
[116] Exhibit A, SWAPE Comments, p. 4.
[117] Exhibit A, SWAPE Comments, p. 4-5.
[118] California Office of Planning and Research, General Plan Guidelines Chapter 8 Climate Change.

support for its no significant impact conclusion was prejudicial, in that it deprived decision makers and the public of substantial relevant information about the project's likely impacts."[119] However, the City's reliance on the ECAP without substantial evidentiary support, makes the CEQA Checklist inadequate.

Further, CEQA requires the lead agency to use scientific data to evaluate GHG impacts directly and indirectly associated with a project.[120] The analysis must "reasonably reflect evolving scientific knowledge and state regulatory schemes."[121] In determining the significance of GHG emissions impacts, the agency must consider the extent to which the project may increase GHG emissions compared to the existing environmental setting and the "extent to which the project complies with regulations or requirements adopted to implement a statewide, regional, or local plan for the reduction or mitigation of greenhouse gas emissions."[122] City of Oakland's ECAP requires projects that exceed any CEQA threshold to implement mitigation measures and comply with the City's SCAs. However, the CEQA Checklist fails to estimate and evaluate the proposed Project's GHG emissions based on any quantitative thresholds. This informational deficiency violates CEQA. An EIR must be prepared.

An EIR must be prepared to include an adequate evaluation and mitigation of the proposed Project's GHG emissions to ensure that impacts are reduced to a less than significant level. Absent an EIR, the Planning Commission's decision to approve the Project violated CEQA, and was not supported by substantial evidence in the record.

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[119] *(Newhall Ranch)* (2015) 62 Cal.4th 204, 264.
[120] See 14 C.C.R. § 15064.4(a) (lead agencies "shall make a good-faith effort, based to the extent possible on scientific and factual data, to describe, calculate or estimate the amount of greenhouse gas emissions resulting from a project); 14 C.C.R. § 15064(d) (evaluating significance of the environmental effect of a project requires consideration of reasonably foreseeable indirect physical changes caused by the project); 14 C.C.R. § 15358(a)(2) (defining "effects" or "impacts" to include indirect or secondary effects caused by the project and are "later in time or farther removed in distance, but are still reasonably foreseeable" including "effects on air"); CEQA Guidelines, Appendix G, § VIII: Greenhouse Gas Emissions (stating agencies should consider whether the project would "generate greenhouse gas emissions, ***either directly or indirectly***, that may have a significant impact on the environment.") (emphasis added).
[121] 14 C.C.R. § 15064.4(b); see also *Cleveland National Forest Foundation v. San Diego Assn. of Governments* (2017) 3 Cal.5th 497, 504 (holding that lead agencies have an obligation to track shifting regulations and to prepare EIRs in a fashion that keeps "in step with evolving scientific knowledge and state regulatory schemes").
[122] 14 C.C.R. § 15064.4(b)(1), (3).

E. The CEQA Analysis Fails to Adequately Analyze and Mitigate Impacts from Noise and Vibration

The CEQA Analysis states that the Applicant would submit a Vibration Reduction Plan and implement vibration reduction measures, but these measures are not available for public review to determine whether they would constitute effective mitigation. CEQA requires public agencies to avoid or reduce environmental damage when "feasible" by requiring consideration of environmentally superior alternatives and adoption of all feasible mitigation measures.[123] If the project will have a significant effect on the environment, the agency may approve the project only if it finds that it has "eliminated or substantially lessened all significant effects on the environment" to the greatest extent feasible and that any unavoidable significant effects on the environment are "acceptable due to overriding concerns."[124] CEQA prohibits deferring identification of mitigation measures when there is uncertainty about the efficacy of those measures.[125]

The CEQA Checklist provides that the Project would adhere to City of Oakland's SCAs and require operational noise to meet applicable noise performance standards. The courts have held that compliance with regulations, including noise ordinances, is not an adequate significance threshold because it does not foreclose the possibility of significant impacts.[126] Similarly, here, compliance with the SCAs does not assure that noise impacts will be less than significant.

CEQA requires mitigation measures to be enforceable through binding conditions.[127] CEQA also requires agencies to conclude that an impact is less than significant only after it produces rigorous analysis and concrete substantial evidence justifying the finding. The proposed measures thus violate CEQA by failing to show not only how they will achieve reduction below the threshold of

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[123] 14 C.C.R. § 15002(a)(2), (3); *see also Berkeley Jets*, 91 Cal.App.4th at 1354; *Citizens of Goleta Valley*, 52 Cal.3d at 564.
[124] Public Resources Code § 21081(a)(3), (b); 14 C.C.R. §§ 15090(a), 15091(a), 15092(b)(2)(A), (B); *Covington v. Great Basin Unified Air Pollution Control Dist.* (2019) 43 Cal.App.5th 867, 883.
[125] 14 C.C.R. § 15126.4(a)(1)(B); *City of Marina v. Board of Trustees of the California State University* (2006) 39 Cal.4th 341, 366; *Sundstrom v. County of Mendocino* (1988) 202 Cal.App.3d 296, 308–309.
[126] *Keep our Mountains Quiet v. Santa Clara* (2015) 236 Cal.App.4th 714, 733; *CBE v. CRA* (2002) 103 Cal.App.4th 98, 115-16; *King & Gardiner Farms, LLC v. County of Kern* (2020) 45 Cal.App.5th 814, 893, as modified on denial of reh'g (Mar. 20, 2020)
[127] 14 C.C.R. § 15126.4(a)(2).

significance, but what is the level of reduction they set to achieve. Moreover, many of the measures include phrases such as "where feasible", and "if such measures are feasible", making them completely unenforceable, in violation of CEQA.

A DEIR must be prepared to include enforceable mitigation measures and support with substantial evidence the levels of noise reduction these measures will achieve. Absent substantial evidence in the record, the Planning Commission's decision to approve the Project violated CEQA.

F. The Project is Inconsistent with the Density Established by Existing Zoning and Does Not Qualify for the Infill Streamlining Exemptions

In order to qualify for the Infill Exemptions identified in the CEQA Analysis, projects must be consistent with existing zoning. The Project fails to meet this requirement because the Project's exceeds allowable zoning density.

The 1396 5th St. Parcel is zoned for a density of development that would authorize 171 units, with a maximum building height of 100 feet.[128] With the approvals proposed for the Project, the Applicants would be permitted to build 222 units in an eight-story building, at a height of 85 feet.[129] As discussed above, the Applicant is requesting discretionary approvals including a Major Conditional Use Permit because any development in the S-15W-zone exceeding 100,000 square feet of new floor area requires a Major CUP. The Applicant is also requesting a Minor Conditional Use Permit because in the S-15W zone, any off-street parking, loading, or driveway located on the ground floor within 20 feet of a pedestrian walkway or plaza requires a conditional use permit. Because the proposed onsite parking and loading areas are within 20 feet of pedestrian walkway/plaza off Kirkham Street, a conditional use permit is required here. The Applicant also requests Regular Design Review for new construction, and a Tentative Parcel Map.

The City's reliance on anticipated density bonus approvals to claim that the Project is currently "consistent" with existing zoning and land use plans in order to claim an exemption from CEQA is unsupported and contrary to CEQA. CEQA requires that the lead agency determine the appropriate form of CEQA review at

[128] *Id.* at 18.
[129] CEQA Analysis, p. 10.

the time the project application is submitted, not based on speculative future approvals.[130]

CEQA also requires lead agency to analyze the 'whole' of the project – this includes all foreseeable discretionary approvals.[131] For example, in *Laurel Heights Improvement Association v. Regents of University of California*[132] the California Supreme Court rejected an EIR where the agency failed to consider the whole of the project. The agency defined the project as involving "only the acquisition and operation of an existing facility and negligible or no expansion of use of existing use at that facility."[133] However, the Court found that future expansion of the project was a reasonably foreseeable consequence of the project and would likely change the scope or nature of the initial project or its environmental effects.[134] Here, approval of the Project's requested density bonus is a reasonably foreseeable consequence of the Project. The City therefore has a duty to analyze the impacts of the increase in density (and other associated impacts) that would result from approval of the density bonus.

When viewed as a whole, there is no dispute that the Project exceeds applicable WOSP zoning, density and height requirements. By ignoring the Project's facial inconsistency with these requirements, the potentially significant impacts associated with those inconsistencies escape environmental review. As a result, the City has both failed to comply with its CEQA obligations to disclose the nature and severity of the Project's impacts, and the City lacks substantial evidence to support its density bonus findings that the Project's proposed height waiver and additional density bonus units would not have a specific adverse impact upon public health and safety or the physical environment.[135]

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[130] CEQA Guidelines, § 15063 (timing and process of initial study); Pub. Resources Code, §§ 21003.1 (early identification of environmental effects), 21006 (CEQA is integral to agency decision making).
[131] Pub. Resources Code, § 21082.2(a) ("The lead agency shall determine whether a project may have a significant effect on the environment based on substantial evidence in light of the whole record"); CEQA Guidelines, § 15003(h) ("The lead agency must consider the whole of an action, not simply its constituent parts, when determining whether it will have a significant environmental effect" and citing *Citizens Assn. for Sensible Development of Bishop Area v. County of Inyo* (1985) 172 Cal.App.3d 151); *Laurel Heights Improvement Assn. v. Regents of University of California* (1988) 47 Cal.3d 376, 401 ("*Laurel Heights I")*
[132] *Laurel Heights I, supra,* 47 Cal.3d 376.
[133] *Laurel Heights I, supra,* 47 Cal.3d at p. 388.
[134] *Laurel Heights I, supra,* 47 Cal.3d at p. 396.
[135] Gov. Code, § 65589.5(d)(2); see also OPC, §§ 17.107.100.B; 17.107.095.A.1.
5085-004acp

The City may be attempting to rely on *Wollmer v. City of Berkeley*[136] to determine the Project's consistency with WOSP zoning requirements based on the Project's pre-density bonus "base units" rather than on the actual size of the Project. This reliance is misplaced.

Wollmer applied to the CEQA Guidelines 15332 categorical in-fill exemption, and not the in-fill and community plan exemptions relied on here, at CEQA Guidelines, Sections 15183 and 15183.3. The *Wollmer* Court relied on express language in the 15332 exemption which qualifies consistency determination based on whether the land use plan is "applicable" to the project. CEQA Guidelines, Sections 15183 and 15183.3 contain no such language, and do not qualify plan consistency with any discretionary decision by the lead agency as to whether the plan is, or is not, "applicable" to the Project once the density bonus is applied.[137]

Moreover, the *Wollmer* court found that the applicable plan was the City of Berkeley's general plan, which did not contain a density restriction that would conflict with the proposed project. The court explains, "[t]he City's zoning ordinance does not specify a maximum density for the [district applicable to the proposed project] …. However, the land use element of the general plan specifies a maximum density of 44 to 88 persons (20 to 40 dwelling units) per acre for the area within the land use classification that includes the [applicable] District…."[138] The court went on to explain that "the City does not apply the general plan density standards to specific parcels. Instead, it applies the standards to larger areas of a land use classification surrounding a proposed project."[139] As opposed to a general plan, "'[a]llowable densities and uses in each zoning district are established in the more detailed and specific Zoning ordinance.'"[140] Using this approach, the *Wollmer* court found that the project was consistent with applicable plan - the general plan - because the project would create a density of "approximately 19 units per acre, which is well below the general plan standard of 40 units per acre."[141]

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[136] *Wollmer v. City of Berkeley* (2011) 193 Cal.App.4th 1329 ("*Wollmer*").
[137] CEQA Guidelines section 15183 allows Project consistency to be determined based on "uniformly applied development policies." 14 CCR § 15183(g). Density bonuses are not uniformly applied standards. They require case-by-case application, and are applicable only to projects providing affordable housing.
[138] *Wollmer, supra,* 193 Cal.App.4th at p. 1345.
[139] *Wollmer, supra,* 193 Cal.App.4th at p. 1345.
[140] *Wollmer, supra,* 193 Cal.App.4th at p. 1345, citing the Berkley General Plan.
[141] *Wollmer, supra,* 193 Cal.App.4th at p. 1345.

The Supreme Court, as well as the Courts of Appeal, have held that CEQA exemptions must be narrowly construed and "[e]xemption categories are not to be expanded beyond the reasonable scope of their statutory language."[142] The Supreme Court has also consistently held that CEQA exemptions are not to be implied,[143] and that other statutes do not implicitly preempt CEQA or exempt proposed projects from CEQA review – even if the other statute has environmental safeguards of its own. Instead, CEQA must be harmonized with other statutes and a proposed project must comply with both CEQA and any other applicable statute.[144]

In this case, the CEQA Analysis relies on the assumption that the City will grant a density bonus to the Project, consistent with the Density Bonus Law.[145] However, since the density bonus would result in the Project being inconsistent with the WOSP zoning designation and development standards, the CEQA In-Fill Exemption does not apply, and full CEQA review is required. While the legislature created a CEQA exemption for "Qualified In-Fill Development Projects," there is no such CEQA exemption for "Density Bonus Projects." Thus, while in-fill development projects are exempt from CEQA if they comply with all applicable general plan and zoning requirements, an in-fill development project that exceeds general plan and zoning designations as a result of a density bonus waiver granted to accommodate its entitlement to density units and/or incentives and concessions from zoning requirements, is not subject to the Infill Exemption. While the City may be within its rights to grant density bonus and zoning concessions for the Project pursuant to the Density Bonus Law, it is still required to conduct CEQA review for the entire Project – including the additional units and building height added by the density bonus - since the Project as a whole fails to comply with the zoning designations as a result of the density bonus. When properly considered, the Project exceeds applicable density and does not qualify for the Infill Exemptions.

The CEQA Analysis provides no evidence to support its conclusion that the Project is "consistent" with applicable density so as to rely on the Infill Exemptions. Instead, the CEQA Analysis merely references the City's reliance on the anticipated density bonus as the bases for its consistency determination. The City must withdraw the CEQA Analysis and direct staff to prepare an EIR which discloses,

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[142] *Mountain Lion Found. v. Fish & Game Comm'n* (1997) 16 Cal.4th 105, 125 ("*Mountain Lion*").
[143] *Wildlife Alive v. Chickering*, 18 Cal.3d at 195-198, 202.
[144] *Bozung v. Local Agency Formation Comm*. (1975) 13 Cal.3d 263, 274.
[145] Gov. Code sec. 65915; OPC Chapter 17.107 (Density Bonus and Incentive Procedure).

analyzes, and mitigates the proposed Project's impacts, and considers environmentally-superior alternatives.

The Density Bonus Law authorizes the City to deny requested density bonus units incentives, concessions, and waivers where the resulting project would have a "specific adverse impact" on public health and safety or the physical environment.[146] A denial is warranted here because the CEQA Analysis fails disclose and mitigate several potentially significant, unmitigated environmental impacts that are likely to be caused or exacerbated by the Project.

As discussed herein, there is substantial evidence demonstrating that the Project is likely to have significant and unmitigated impacts on public health from excess construction TAC emissions, as well as significant environmental impacts on air quality, hazardous materials, and from GHGs. Because the City failed to prepare an EIR for the Project, these impacts have not been fully disclosed or mitigated, as required by CEQA.[147]

The Density Bonus Law provides that projects with adverse impacts warrant denial unless the approving agency is able to find that "there is no feasible method to satisfactorily mitigate or avoid the specific adverse impact without rendering the development unaffordable to low and moderate income households."[148] The City has not performed the requisite CEQA analysis to evaluate the cost and feasibility of mitigation required to reduce the Project's impacts to the greatest extent feasible. Therefore, the City lacks substantial evidence to support a finding that there is "no feasible method" of mitigating these impacts without rendering the Project's affordability component infeasible. As a result, the City cannot make the requisite findings to approve a density bonus in the face of the Project's significant public health and environmental impacts.

The City should deny the requested CEQA infill exemptions and density bonus unless and until the City prepares an EIR to fully disclose and mitigate these impacts to the greatest extent feasible.[149]

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[146] See OPC, §§ 17.107.100(B); 17.107.095.A.1.
[147] Pub. Res. Code §§ 21002.1(a), 21100(b)(3).
[148] See OPC, sec. 17.107.100(B).
[149] OPC, § 17.107.100(B) (density bonus cannot be approved where it would release in an adverse impact, as defined by Gov. Code, § 65589.5(d).)
5085-004acp

G. The Project is Not Consistent with Substantive Requirements for the Community Plan Exemption

CEQA Guidelines Section 15183 (Community Plan) may apply only when a Project does not have impacts that are peculiar to the proposed project or parcel, are new or more significant than previously analyzed, are potentially significant off-site or cumulative impacts, or cannot be substantially mitigated by uniformly applicable development policies or standards.[150]

The Project fails to meet these requirements because the site is highly contaminated and could pose a significant health and safety risk to construction workers, nearby residents, and off-site receptors which was not fully disclosed or analyzed under the WOSP EIR, LUTE EIR, or General Plan. Furthermore, as discussed above and in SWAPE's Comments, the Project's health risks from TAC emissions during construction are highly significant and unmitigated.

The Community Plan exemption does not apply to the Project because neither the WOSP EIR, nor any of the other planning documents relied on in the CEQA Analysis, actually quantified project-level health risks. The WOSP EIR therefore did not fully address the Project's peculiar and more significant impacts related to soil and groundwater contamination, and from TAC emissions, and there is substantial evidence demonstrating that the SCAs would not substantially mitigate these significant impacts, or reduce them to the greatest extent feasible, as required by CEQA.[151] The absence of any previous project-specific analysis renders the City's determination that SCAs would mitigate the impact unsupported. Moreover, the City's reliance on SCAs to mitigate these impacts, without first analyzing them in an EIR, violates the requirements of Section 15183, rendering it inapplicable to the Project.

The Project will have new or more severe significant impacts than previously analyzed in the WOSP EIR, LUTE EIR, or General Plan. In addition, as described below, the site-specific analysis conducted for the Project is legally deficient in several ways and the CEQA Analysis fails to incorporate all feasible mitigation. Therefore, the City may not rely on the CEQA Analysis for Project approval, and must provide detailed analysis of the Project's impacts in a subsequent or supplemental EIR.

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[150] 14 CCR § 15183(a)-(c).
[151] PRC § 21081(a).

H. The City Cannot Make the Findings Required Under the Subdivision Map Act to Approve the Project's Tentative or Final Parcel Map.

The Project requires a Tentative Parcel Map under the Subdivision Map Act ("Map Act") to merge the Project site's existing lots into one lot. The Commission's approval of the Project's Tentative Parcel Map violated the Map Act and City municipal codes[152] because, *inter alia*, the Project (1) is inconsistent with the applicable specific plan; (2) is not suitable site for type and density of development proposed; (3) has significant environmental impacts; and (4) has significant public health impacts.

The purpose of the Map Act is to regulate and control design and improvement of subdivisions with proper consideration for their relation to adjoining areas, to require subdividers to install streets and other improvements, to prevent fraud and exploitation, and to protect both the public and purchasers of subdivided lands.[153] Before approving a tentative map, the Map Act requires the agency's legislative body to make findings that the proposed subdivision map, together with the provisions for its design and improvement, is consistent with the general plan and any specific plan.[154] The Map Act also requires the agency's legislative body to deny a proposed subdivision map in any of the following circumstances:

> (a) the proposed map is not consistent with applicable general and specific plans as specified in Section 65451.
> (b) the design or improvement of the proposed subdivision is not consistent with applicable general and specific plans.
> (c) the site is not physically suitable for the type of development.
> (d) the site is not physically suitable for the proposed density of development.
> (e) the design of the subdivision or the proposed improvements are likely to cause substantial environmental damage or substantially and avoidably injure fish or wildlife or their habitat.
> (f) the design of the subdivision or type of improvements is likely to cause serious public health problems.
> (g) the design of the subdivision or the type of improvements will conflict with easements, acquired by the public at large, for access through or use of,

[152] See OMC § 16.04.100.
[153] *Pratt v. Adams* (1964) 229 Cal.App.2d 602.
[154] Gov Code § 66473.5.

> property within the proposed subdivision. In this connection, the governing body may approve a map if it finds that alternate easements, for access or for use, will be provided, and that these will be substantially equivalent to ones previously acquired by the public. This subsection shall apply only to easements of record or to easements established by judgment of a court of competent jurisdiction and no authority is hereby granted to a legislative body to determine that the public at large has acquired easements for access through or use of property within the proposed subdivision.[155]

Residents' experts have provided substantial evidence demonstrating that the Project is likely to have significant, unmitigated impacts on air quality, public health, and from hazardous materials and GHGs. The Project's proposed density also exceeds the allowable residential density under the WOSP, Resulting in a significant land use impact. These impacts demonstrate that the Project, as analyzed in the CEQA Analysis, fails to comply with the WOSP, is "likely to cause substantial environmental damage," and "is likely to cause serious public health problems." These unmitigated impacts render the Project inconsistent with Map Act requirements. The Map Act therefore required the City to deny the Project's Tentative Map pursuant to Government Code Sections 66473.5 and 66474(a), (b), (d), (e), and (f), and the Commission lacked substantial evidence to find that the Project complies with the Map Act.

IV. CONCLUSION

For the reasons stated herein, we urge the City Council to vacate the Planning Commission's approval of the Project, and remand the Project to Staff to prepare a revised environmental analysis in an EIR, as required by CEQA. The new analysis must identify and implement all feasible mitigation measures available to reduce the Project's potentially significant site-specific impacts to less than significant levels before the City reconsiders approving the Project.

[155] Gov. Code § 66474 (emphasis added).

Thank you for your attention to these comments. Please include them in the City's record of proceedings for the Project.

Sincerely,

Kelilah D. Federman
Associate Attorney

KDF:acp
Attachments

5085-004acp

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March 3, 2021

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Re: Agenda Item No. 1: 1396 5th Street Project (Case File Number: PLN20-101)

Dear Chair Limon and Members of the Planning Commission, Mr. Vollmann:

We write on behalf of East Bay Residents for Responsible Development ("East Bay Residents" or "Residents") regarding the 1396 5th Street Project (Case File Number: PLN20-101; APN: 004-0069-004-00) ("Project") proposed by Scott Cooper, The Michaels Organization, and/or Oakland Housing Investors LP (listed as Owner) (collectively, "Applicants"). The Applicants are requesting Regular Design Review, a Minor Conditional Use Permit ("Minor CUP"), a Major Conditional Use

Permit ("Major CUP"), a Tentative Parcel Map; and an exemption from further environmental review under the California Environmental Quality Act ("CEQA").[1]

The proposed Project is bordered by the Bay Area Rapid Transit ("BART") tracks to the north, Mandela Parkway to the west, 5th Street to the south, and Kirkham Street to the east. The Project site is approximately 38,000 square feet.[2] The Project building height would be 85 feet, and the site would contain 41 vehicle parking spaces.[3] The Property will contain 222 residential units.[4] The proposed Project would also include a diesel-powered emergency generator.[5]

Nine percent (9%) of the Project's residential units are proposed to be reserved for Very Low-Income Housing ("VLI").[6] The Applicants are seeking a density bonus under State law for including VLI housing. The density bonus would qualify the Applicants to receive one development waiver and one concession.[7] Consequently, the Applicants hope to receive a State density bonus to construct 30% more units[8], a waiver to reduce the open space and minimum court between opposite walls requirements, and a concession to reduce the number of parking spaces.[9]

The proposed Project would be located within the 7th Street Opportunity Area of the West Oakland Specific Plan ("WOSP") in the S-15W Transit-Oriented Development Commercial Zone.[10] The CEQA Analysis determined that the Project is subject to a (1) Specific Plan exemption per CEQA Section 21155.4 and CEQA Guidelines Section 15182, (2) Community Plan exemption because it is consistent with a community plan, general plan, or zoning per CEQA Guidelines Section 15182 and 15183; (3) Qualified Infill projects exemption per CEQA Guidelines 15183.3;

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[1] Oakland Planning Commission Agenda, March 3, 2021 available at: https://cao-94612.s3.amazonaws.com/documents/March-3-2021-Planning-Commission-Meeting-Agenda-Online.pdf.
[2] 1396 5th Street CEQA Analysis (February 2021) available at: https://cao-94612.s3.amazonaws.com/documents/1396-5th-Street-CEQA-Analysis.pdf ("CEQA Analysis").
[3] CEQA Analysis, p. 10.
[4]
[5]
[6] CEQA Analysis, p. 10.
[7] *Id.* at C-2.
[8] *Id.* at 18.
[9] *Id.* at C-2.
[10] Oakland City Planning Commission, Staff Report, Case File Number PLB20-101, (March 3, 2021) p. 1 available at: https://cao-94612.s3.amazonaws.com/documents/01-Staff-Report-Case-File-PLN20101-1396-5th-Street.pdf ("Staff Report").

and (4) Addendum to the 2014 certified WOSP EIR per CEQA Guidelines Sections 15162, 15164, and 15168 such that no additional environmental review is required.[11]

Without the Minor CUP, Major CUP, Tentative Parcel Map, and subsequent density bonus and waiver, the total permitted number of residential units at 1396 5th Street under existing zoning would be 171 units, with a maximum building height of 100 feet.[12] With the approvals proposed for the Project, the Applicants would be permitted to build 222 units in an eight-story building, at a height of 85 feet.[13]

The CEQA Analysis contends that the Project meets the conditions for an Addendum to the WOSP EIR pursuant to CEQA Guidelines Section 15162, 15164, 15168, and 15182 because there is no new information about significant environmental effects or new mitigation measures for the Project that is beyond the scope of effects addressed in the WOSP EIR.[14] Public Resources Code Section 21166 and CEQA Guidelines Section 15164 state that an addendum to a certified EIR is allowed when minor changes or additions are necessary and none of the conditions for preparation of a subsequent EIR or Negative Declaration pursuant to Section 15162 are satisfied.[15] The CEQA Analysis also contends that the Project is subject to the Community Plan and Infill Exemptions because its environmental and public health impacts would be substantially mitigated by existing Standard Conditions of Approval ("SCAs") of the WOSP EIR. These conclusions are factually unsupported and legally incorrect.

There is substantial evidence demonstrating that the Project has changed circumstances, and new and more severe significant environmental and public health impacts that are peculiar to the Project site and are more severe than the effects analyzed in the WOSP EIR. These impacts are not adequately mitigated by the SCAs from the WOSP EIR. In order to substantially mitigate these impacts, the City must adopt considerably stronger and different mitigation than the measures included in the SCAs.

We have prepared our comments on air quality, public health, GHG

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[11] *Id.* at B-2
[12] *Id.* at 18.
[13] CEQA Analysis, p. 10.
[14] CEQA Analysis, p. B-1.
[15] *Id.* at p. 9.

Emissions, and noise with the assistance of air quality and GHG expert Matt Hagemann P.G., C.Hg. and Paul E. Rosenfeld, Ph.D. of Soil Water Air Protection Enterprises ("SWAPE"), whose comments are included in the SWAPE Report. The SWAPE Report and Dr. Rosenfeld's expert curriculum vitae ("CV") are attached hereto as **Exhibit A**.

I. STATEMENT OF INTEREST

Easy Bay Residents for Responsible Development ("ERRBD" or "Residents") is an unincorporated association of individuals and labor organizations that may be adversely affected by the potential impacts associated with Project development. The association includes City of Oakland ("City") residents Luis Valencia, Erik Line, Jason Gumataotao, labor organizations UA Plumbers and Pipefitters Local 342, International Brotherhood of Electrical Workers Local 595, Sheet Metal Workers Local 104, Sprinkler Fitters Local 483, and their members and their families who live and/or work in the City of Oakland and Alameda County.

The individual members of EBRRD live, work, and raise their families in the City of Oakland ("City"). They would be directly affected by the Project's impacts. Individual members may also work on the Project itself. They will therefore be first in line to be exposed to any health and safety hazards that may exist on the Project site.

The organizational members of EBRRD also have an interest in enforcing the City's planning and zoning laws and the State's environmental laws that encourage sustainable development and ensure a safe working environment for its members. Environmentally detrimental projects can jeopardize future jobs by making it more difficult and more expensive for business and industry to expand in the region, and by making it less desirable for businesses to locate and people to live there. Indeed, continued degradation can, and has, caused restrictions on growth that reduce future employment opportunities. Finally, EBRRD's members are concerned about projects that present environmental and land use impacts without providing countervailing economic and community benefits.

II. THE CITY MUST PREPARE A SUBSEQUENT OR SUPPLEMENTAL EIR WHICH DISCLOSES, ANALYZES, AND MITIGATES THE PROJECT'S POTENTIALLY SIGNIFICANT IMPACTS TO AIR QUALITY, PUBLIC HEALTH, GHG, HAZARDOUS MATERIALS, NOISE, AND TRAFFIC.

CEQA has two basic purposes, neither of which is satisfied by the CEQA Analysis. First, CEQA is designed to inform decision makers and the public about the potential, significant environmental impacts of a project before harm is done to the environment.[16] The Environmental Impact Report ("EIR") is the "heart" of this requirement.[17] The EIR has been described as "an environmental 'alarm bell' whose purpose it is to alert the public and its responsible officials to environmental changes before they have reached ecological points of no return."[18]

To fulfill this function, the discussion of impacts in an EIR must be detailed, complete, and "reflect a good faith effort at full disclosure."[19] An adequate EIR must contain facts and analysis, not just an agency's conclusions.[20] CEQA requires an EIR to disclose all potential direct and indirect, significant environmental impacts of a project.[21]

Second, CEQA directs public agencies to avoid or reduce environmental damage when possible by requiring imposition of mitigation measures and by requiring the consideration of environmentally superior alternatives.[22] If an EIR identifies potentially significant impacts, it must then propose and evaluate mitigation measures to minimize these impacts.[23] CEQA imposes an affirmative obligation on agencies to avoid or reduce environmental harm by adopting feasible project alternatives or mitigation measures.[24] Without an adequate analysis and

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[16] 14 Cal. Code Regs. § 15002(a)(1) ("CEQA Guidelines"); *Berkeley Keep Jets Over the Bay v. Bd. of Port Comm'rs.* (2001) 91 Cal.App.4th 1344, 1354 ("*Berkeley Jets*"); *County of Inyo v. Yorty* (1973) 32 Cal.App.3d 795, 810.
[17] *No Oil, Inc. v. City of Los Angeles* (1974) 13 Cal.3d 68, 84.
[18] *County of Inyo v. Yorty* (1973) 32 Cal.App.3d 795, 810.
[19] CEQA Guidelines § 15151; *San Joaquin Raptor/Wildlife Rescue Center v. County of Stanislaus* (1994) 27 Cal.App.4th 713, 721-722.
[20] *See Citizens of Goleta Valley v. Board of Supervisors* (1990) 52 Cal.3d 553, 568.
[21] Pub. Resources Code § 21100(b)(1); CEQA Guidelines § 15126.2(a).
[22] CEQA Guidelines § 15002(a)(2) and (3); *Berkeley Jets,* 91 Cal.App.4th at 1354; *Laurel Heights Improvement Ass'n v. Regents of the University of Cal.* (1998) 47 Cal.3d 376, 400.
[23] Pub. Resources Code §§ 21002.1(a), 21100(b)(3).
[24] *Id.*, §§ 21002-21002.1.

description of feasible mitigation measures, it would be impossible for agencies relying upon the EIR to meet this obligation.

Under CEQA, an EIR must not only discuss measures to avoid or minimize adverse impacts, but must ensure that mitigation conditions are fully enforceable through permit conditions, agreements or other legally binding instruments.[25] A CEQA lead agency is precluded from making the required CEQA findings unless the record shows that all uncertainties regarding the mitigation of impacts have been resolved; an agency may not rely on mitigation measures of uncertain efficacy or feasibility.[26] This approach helps "insure the integrity of the process of decision by precluding stubborn problems or serious criticism from being swept under the rug."[27]

Following preliminary review of a project to determine whether an activity is subject to CEQA, a lead agency is required to prepare an initial study to determine whether to prepare an EIR or negative declaration, identify whether a program EIR, tiering, or other appropriate process can be used for analysis of the project's environmental effects, or determine whether a previously prepared EIR could be used with the project, among other purposes.[28] CEQA requires an agency to analyze the potential environmental impacts of its proposed actions in an EIR except in certain limited circumstances.[29] A negative declaration may be prepared instead of an EIR when, after preparing an initial study, a lead agency determines that a project "would not have a significant effect on the environment."[30]

When an EIR has previously been prepared that could apply to the Project, CEQA requires the lead agency to conduct subsequent or supplemental environmental review when one or more of the following events occur:

(a) Substantial changes are proposed in the project which will require major revisions of the environmental impact report;

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[25] CEQA Guidelines § 15126.4(a)(2).
[26] *Kings County Farm Bur. v. County of Hanford* (1990) 221 Cal.App.3d 692, 727-28 (a groundwater purchase agreement found to be inadequate mitigation because there was no record evidence that replacement water was available).
[27] *Concerned Citizens of Costa Mesa, Inc. v. 32nd Dist. Agricultural Assn.* (1986) 42 Cal.3d 929, 935.
[28] CEQA Guidelines §§ 15060, 15063(c).
[29] *See, e.g.,* Pub. Resources Code § 21100.
[30] *Quail Botanical Gardens v. City of Encinitas* (1994) 29 Cal.App.4th 1597; Pub. Resources Code § 21080(c).

(b) Substantial changes occur with respect to the circumstances under which the project is being undertaken which will require major revisions in the environmental impact report; or

(c) New information, which was not known and could not have been known at the time the environmental impact report was certified as complete, becomes available.[31]

The CEQA Guidelines explain that the lead agency must determine, on the basis of substantial evidence in light of the whole record, if one or more of the following events occur:

(1) Substantial changes are proposed in the project which will require major revisions of the previous EIR due to the involvement of new significant effects or a substantial increase in the severity of previously identified effects;

(2) Substantial changes occur with respect to the circumstances under which the project is undertaken which will require major revisions of the previous EIR due to the involvement of new significant environmental effects or a substantial increase in the severity of previously identified significant effects; or

(3) New information of substantial importance, which was not known and could not have been known with the exercise of reasonable diligence at the time the previous EIR was certified as complete or the negative declaration was adopted, shows any of the following:

(A) The project will have one or more significant effects not discussed in the previous EIR or negative declaration;

(B) Significant effects previously examined will be substantially more severe than shown in the previous EIR;

(C) Mitigation measures or alternatives previously found not to be feasible would in fact be feasible, and would substantially reduce one or more significant effects of the project, but the

[31] Pub. Resources Code § 21166.

project proponents decline to adopt the mitigation measure or alternative; or

(D) Mitigation measures or alternatives which are considerably different from those analyzed in the previous EIR would substantially reduce one or more significant effects on the environment, but the project proponents decline to adopt the mitigation measure or alternative.[32]

Only where ***none*** of the conditions described above calling for preparation of a subsequent or supplemental EIR have occurred may the lead agency consider preparing a subsequent negative declaration, an Addendum or no further documentation.[33] For Addendums specifically, which is one of several CEQA exemption/streamlining avenues that the City claims is applicable to the Project, CEQA allows Addendums to a previously certified EIR if minor changes or additions are necessary but none of the conditions described in Section 15162 calling for preparation of a subsequent EIR have occurred.[34]

Here, the City has failed to demonstrate that the Project can be lawfully approved based on the CEQA Analysis provided. Indeed, as explained in this letter, the City must disclose, analyze, and mitigate the Project's significant impacts in an EIR. Otherwise, the City's approval of the Project would violate CEQA.

The lead agency's significance determination for each impact must be supported by substantial evidence, including accurate scientific and factual data.[35] Under CEQA, an agency cannot conclude that an impact is less than significant unless it produces rigorous analysis and concrete substantial evidence justifying the finding.[36] Moreover, the failure to provide information required by CEQA is a failure to proceed in the manner required by CEQA.[37] Challenges to an agency's failure to proceed in the manner required by CEQA, such as the failure to address a subject required to be covered in an EIR or to disclose information about a project's environmental effects or alternatives, are subject to a less deferential standard than

[32] CEQA Guidelines § 15162(a)(1)-(3).
[33] CEQA Guidelines § 15162(b).
[34] CEQA Guidelines § 15164; CEQA Analysis, p. 9.
[35] 14 C.C.R. § 15064(b).
[36] *Kings Cty. Farm Bur. v. Hanford* (1990) 221 Cal.App.3d 692, 732.
[37] *Sierra Club v. State Bd. Of Forestry* (1994) 7 Cal.4th 1215, 1236.

challenges to an agency's factual conclusions.[38] In reviewing challenges to an agency's approval of an EIR based on a lack of substantial evidence, the court will "determine de novo whether the agency has employed the correct procedures, scrupulously enforcing all legislatively mandated CEQA requirements."[39]

Even when the substantial evidence standard is applicable to agency decisions to certify an EIR and approve a project, reviewing courts will not 'uncritically rely on every study or analysis presented by a project proponent in support of its position. A clearly inadequate or unsupported study is entitled to no judicial deference.'"[40] Here, the City cites incorrect analysis of annual operational emissions and construction emissions.[41] An EIR is required to remedy these informational deficiencies.

A. The Project is Not Consistent with CEQA Addendum and Exemption Requirements

The City Relies on three CEQA provisions in proposing to approve the Project without an EIR.[42] Those provisions include the Community Plan Exemption,[43] Qualified Infill Exemption,[44] and Addendum to the WOSP EIR.[45] However, the City's reliance on these provisions is misplaced.

The CEQA Analysis does not simply provide "some changes or additions are necessary" to the EIR as is allowed under the Addendum provision.[46] Rather, it includes a new substantive analysis for a large development project which was not specifically analyzed in the WOSP EIR.[47] Second, as explained further below, the Project will result in new or more severe significant impacts than analyzed in previous EIRs, and there are new mitigation measures that were not considered in the previous EIRs, but that would reduce those impacts to a less than significant

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[38] *Vineyard Area Citizens for Responsible Growth, Inc. v. City of Rancho Cordova* (2007) 40 Cal.4th 412, 435.
[39] *Id., Madera Oversight Coal., Inc. v. County of Madera* (2011) 199 Cal. App. 4th 48, 102.
[40] *Berkeley Jets*, 91 Cal.App.4th at 1355.
[41] SWAPE Comments, p. 2.
[42] CEQA Analysis, p. 2.
[43] CEQA Guidelines § 15183.
[44] CEQA Guidelines § 15183.3.
[45] CEQA Guidelines § 15164.
[46] CEQA Guidelines § 15164(a).
[47] *See* CEQA Analysis, p. B-1.

level. The City's decision not to prepare a subsequent or supplemental EIR for the project is not supported by substantial evidence.[48]

The City also relies on additional CEQA provisions that allow approval of projects without an EIR in narrow circumstances. Specifically, the City relies on CEQA Guidelines Sections 15183 (Community Plan)[49] and 15183.3 (Qualified Infill)[50] for Project approval. However, the City's determination that exemptions also apply is not supported by substantial evidence.

The exemptions apply only when a Project does not have impacts peculiar to the proposed project that are new or more significant than previously analyzed or can be substantially mitigated by uniformly applicable development policies or standards. The Project fails to meet these requirements because the site is highly contaminated with carcinogenic compounds in soil and groundwater that have not been remediated to residential standards. These contaminants could pose a significant risk to construction workers, residents and off-site receptors which was not fully disclosed or analyzed under the WOSP EIR. Furthermore, the Project's health risks from diesel particulate matter ("DPM") emissions during construction may be highly significant. In particular, because the WOSP EIR did not actually quantify project-level health risks, the absence of any previous project-specific analysis undermines the City's determination that SCAs would mitigate the impact. Unfortunately, the WOSP EIR did not fully address these peculiar and more significant impacts, and there are mitigation measures not previously identified that would reduce these significant impacts.

Thus, the Project will have new and more severe significant impacts than previously analyzed in the WOSP EIR. These impacts are peculiar to the Project site, and were not contemplated in the WOSP EIR. In addition, as described below, the site-specific analysis conducted for the Project is legally deficient in several ways and the CEQA Analysis fails to incorporate all feasible mitigation. Therefore, the City may not rely on the CEQA Analysis for Project approval, and must provide detailed analysis of the Project's impacts in a subsequent or supplemental EIR.

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[48] CEQA Guidelines §§ 15162 (a), 15164(e), and 15168(c)(4).
[49] CEQA Guidelines Section 15183.
[50] CEQA Guidelines Section 15183.3.

B. The Project is Inconsistent with the Density Established by Existing Zoning and Does Not Qualify for the Infill Exemption

In order to qualify for the Infill Exemption under CEQA Guidelines Section 15332, projects must meet four mandatory requirements:

(a) The project is consistent with the applicable general plan designation and all applicable general plan policies as well as with applicable zoning designation and regulations.
(b) The proposed development occurs within city limits on a project site of no more than five acres substantially surrounded by urban uses.
(c) The project site has no value as habitat for endangered, rare or threatened species.
(d) Approval of the project would not result in any significant effects relating to traffic, noise, air quality, or water quality.
(e) The site can be adequately served by all required utilities and public services.

The Project fails to meet the requirements of Section 15332(c) and (d) because, as discussed below, the Project is likely to result in significant, unmitigated air quality impacts. Moreover, the City lacks substantial evidence to support the CEQA Analysis's conclusion that the Project will not result in significant air quality impacts because the City failed to conduct a health risk analysis. For these reasons, the Project fails to qualify for the Infill Exemption.

It is well established that, if a project requires mitigation measures, it cannot be approved via a categorical exemption. As the court explained in *SPAWN v. Marin*:[51]

> Only those projects having no significant effect on the environment are categorically exempt from CEQA review. (Pub. Resources Code, §§ 21080, subd.(b)(9), 21084, subd. (a).) If a project may have a significant effect on the environment, CEQA review must occur and only then are mitigation measures relevant. (*Azusa Land Reclamation Co. v. Main San Gabriel Basin Watermaster* (1997) 52 Cal.App.4th 1165, 1199-2000.) Mitigation measures may support a negative declaration but not a categorical exemption.

[51] (2004) 125 Cal.App.4th 1098, 1102.

The CEQA Checklist require the adoption of a Mitigation Monitoring and Reporting Plan ("MMRP") for the Project. The MMRP includes 93 separate mitigation measures in the form of the City's SCAs. But, no mitigation measures beyond the SCAs are required for this project.[52] The SCAs that are applicable to the Project include mitigation measures to reduce potentially significant impacts in virtually every resource areas, including: aesthetics, shadow and wind; air quality; cultural resources; geology, soils, and geohazards; greenhouse gases and climate change; hazards and hazardous materials; hydrology and water quality; noise; population and housing; public services and recreation; transportation and circulation; and utilities and service systems.[53]

The SCAs are required mitigation for the Project, which the City proposes to adopt in a binding MMRP. The City therefore concedes that extensive mitigation is required for this Project to reduce potentially significant impacts. Moreover, our experts demonstrate that the existing SCAs are inadequate to mitigate the Project's air quality and public health impacts to less than significant levels, and that additional site-specific mitigation is required. The City therefore cannot rely on the Infill Exemption (15332) or any other categorical exemption from CEQA, to approve the Project.

Further, the 1396 5th St. Parcel is zoned for a density of development that would permit 171 units, with a maximum building height of 100 feet.[54] With the approvals proposed for the Project, the Applicants would be permitted to build 222 units in an eight-story building, at a height of 85 feet.[55] As discussed above, the Applicants are requesting discretionary approvals including a Major Conditional Use Permit because any development in the S-15W-zone exceeding 100,000 square feet of new floor area requires a Major CUP. Applicants also request a Minor Conditional Use Permit because in the S-15W zone, any off-street parking, loading, or driveway located on the ground floor within 20 feet of a pedestrian walkway or plaza requires a conditional use permit. Because the proposed onsite parking and loading areas are within 20 feet of pedestrian walkway/plaza off Kirkham Street, a conditional use permit is required here. The applicants also request Regular Design Review for new construction, Tentative Parcel Map.

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[52] CEQA Analysis, p. A-1.
[53] CEQA Analysis, p. A-1– A-42.
[54] *Id.* at 18.
[55] CEQA Analysis, p. 10.

The City's reliance on anticipated density bonus approvals to claim that the Project is currently "consistent" with existing zoning and land use plans in order to claim an exemption from CEQA is unsupported and contrary to CEQA. CEQA requires that the lead agency determine the appropriate form of CEQA review at the time the project application is submitted, not based on speculative future approvals.[56]

CEQA requires lead agency to analyze the 'whole' of the project – this includes all foreseeable discretionary approvals.[57] For example, in *Laurel Heights Improvement Association v. Regents of University of California*[58] the California Supreme Court rejected an EIR where the agency failed to consider the whole of the project. The agency defined the project as involving "only the acquisition and operation of an existing facility and negligible or no expansion of use of existing use at that facility."[59] However, the Court found that future expansion of the project was a reasonably foreseeable consequence of the project and would likely change the scope or nature of the initial project or its environmental effects.[60] Here, approval of the Project's requested density bonus is a reasonably foreseeable consequence of the Project. The City therefore has a duty to analyze the impacts of the increase in density (and other associated impacts) that would result from approval of the density bonus.

When viewed as a whole, there is no dispute that the Project exceeds applicable WOSP zoning, density and height requirements. By ignoring the Project's facial inconsistency with these requirements, the potentially significant impacts associated with those inconsistencies escape environmental review. As a result, the City has both failed to comply with its CEQA obligations to disclose the nature and severity of the Project's impacts, and the City lacks substantial evidence to support its density bonus findings that the Project's proposed height waiver and

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[56] CEQA Guidelines, § 15063 (timing and process of initial study); Pub. Resources Code, §§ 21003.1 (early identification of environmental effects), 21006 (CEQA is integral to agency decision making).
[57] Pub. Resources Code, § 21082.2(a) ("The lead agency shall determine whether a project may have a significant effect on the environment based on substantial evidence in light of the whole record"); CEQA Guidelines, § 15003(h) ("The lead agency must consider the whole of an action, not simply its constituent parts, when determining whether it will have a significant environmental effect" and citing *Citizens Assn. for Sensible Development of Bishop Area v. County of Inyo* (1985) 172 Cal.App.3d 151); *Laurel Heights Improvement Assn. v. Regents of University of California* (1988) 47 Cal.3d 376, 401 ("*Laurel Heights I")*
[58] *Laurel Heights I, supra,* 47 Cal.3d 376.
[59] *Laurel Heights I, supra,* 47 Cal.3d at p. 388.
[60] *Laurel Heights I, supra,* 47 Cal.3d at p. 396.

additional density bonus units would not have a specific adverse impact upon public health and safety or the physical environment.[61]

The City may be attempting to rely on *Wollmer v. City of Berkeley*[62] to determine the Project's consistency with WOSP zoning requirements based on the Project's pre-density bonus "base units" rather than on the actual size of the Project. This reliance is misplaced.

Wollmer applied to the CEQA Guidelines 15332 categorical in-fill exemption, and not the in-fill exemption relied on here, at CEQA Guidelines, Section 15183. The *Wollmer* Court relied on express language in the 15332 exemption which qualifies consistency determination based on whether the land use plan is "applicable" to the project. CEQA Guidelines, Section 15183 contains no such language, and does not qualify plan consistency with any discretionary decision by the lead agency as to whether the plan is, or is not, "applicable" to the Project once the density bonus is applied.

Moreover, the *Wollmer* court found that the applicable plan was the City of Berkeley's general plan, which did not contain a density restriction that would conflict with the proposed project. The court explains, "[t]he City's zoning ordinance does not specify a maximum density for the [district applicable to the proposed project] …. However, the land use element of the general plan specifies a maximum density of 44 to 88 persons (20 to 40 dwelling units) per acre for the area within the land use classification that includes the [applicable] District…."[63] The court went on to explain that "the City does not apply the general plan density standards to specific parcels. Instead, it applies the standards to larger areas of a land use classification surrounding a proposed project."[64] As opposed to a general plan, "'[a]llowable densities and uses in each zoning district are established in the more detailed and specific Zoning ordinance.'"[65] Using this approach, the *Wollmer* court found that the project was consistent with applicable plan - the general plan - because the project would create a density of "approximately 19 units per acre, which is well below the general plan standard of 40 units per acre."[66]

The Supreme Court, as well as the Courts of Appeal, have held that CEQA

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[61] Gov. Code, § 65589.5(d)(2); see also OPC, §§ 17.107.100.B; 17.107.095.A.1.
[62] *Wollmer v. City of Berkeley* (2011) 193 Cal.App.4th 1329 ("*Wollmer*").
[63] *Wollmer, supra,* 193 Cal.App.4th at p. 1345.
[64] *Wollmer, supra,* 193 Cal.App.4th at p. 1345.
[65] *Wollmer, supra,* 193 Cal.App.4th at p. 1345, citing the Berkley General Plan.
[66] *Wollmer, supra,* 193 Cal.App.4th at p. 1345.

exemptions must be narrowly construed and "[e]xemption categories are not to be expanded beyond the reasonable scope of their statutory language."[67] The Supreme Court has also consistently held that CEQA exemptions are not to be implied,[68] and that other statutes do not implicitly preempt CEQA or exempt proposed projects from CEQA review – even if the other statute has environmental safeguards of its own. Instead, CEQA must be harmonized with other statutes and a proposed project must comply with both CEQA and any other applicable statute.[69]

In this case, the CEQA Analysis relies on the assumption that the City will grant a density bonus to the Project, consistent with the Density Bonus Law.[70] However, since the density bonus would result in the Project being inconsistent with the WOSP zoning designation and development standards, the CEQA In-Fill Exemption does not apply, and full CEQA review is required. While the legislature created a CEQA exemption for "Qualified In-Fill Development Projects," there is no such CEQA exemption for "Density Bonus Projects." Thus, while in-fill development projects are exempt from CEQA if they comply with all applicable general plan and zoning requirements, an in-fill development project that exceeds general plan and zoning designations as a result of a density bonus waiver granted to accommodate its entitlement to density units and/or incentives and concessions from zoning requirements, is not subject to the Infill Exemption. While the City may be within its rights to grant density bonus and zoning concessions for the Project pursuant to the Density Bonus Law, it is still required to conduct CEQA review for the entire Project – including the additional units and building height added by the density bonus - since the Project as a whole fails to comply with the zoning designations as a result of the density bonus. When properly considered, the Project exceeds applicable density and does not qualify for the Infill Exemption.

The CEQA Analysis provides no evidence to support its conclusion that the Project is "consistent" with applicable density so as to rely on the Infill Exemption. Instead, the CEQA Analysis merely references the City's reliance on the anticipated density bonus as the bases for its consistency determination. The City must withdraw the CEQA Analysis and direct staff to prepare an EIR which discloses, analyzes, and mitigates the proposed Project's impacts, and considers environmentally-superior alternatives.

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[67] *Mountain Lion Found. v. Fish & Game Comm'n* (1997) 16 Cal.4th 105, 125 ("*Mountain Lion*").
[68] *Wildlife Alive v. Chickering*, 18 Cal.3d at 195-198, 202.
[69] *Bozung v. Local Agency Formation Comm*. (1975) 13 Cal.3d 263, 274.
[70] Gov. Code sec. 65915; OPC Chapter 17.107 (Density Bonus and Incentive Procedure).

The Density Bonus Law authorizes the City to deny requested density bonus units incentives, concessions, and waivers where the resulting project would have a "specific adverse impact" on public health and safety or the physical environment.[71] A denial is warranted here because the CEQA Analysis fails disclose and mitigate several potentially significant, unmitigated environmental impacts that are likely to be caused or exacerbated by the Project.

As discussed below, there is substantial evidence demonstrating that the Project is likely to have significant and unmitigated impacts on public health from excess construction TAC emissions and noise, as well as significant environmental impacts on air quality, from GHGs, and on traffic and transportation. Because the City failed to prepare an EIR for the Project, these impacts have not been fully disclosed or mitigated, as required by CEQA.[72]

The Density Bonus Law provides that projects with adverse impacts warrant denial unless the approving agency is able to find that "there is no feasible method to satisfactorily mitigate or avoid the specific adverse impact without rendering the development unaffordable to low and moderate income households."[73] The City has not performed the requisite CEQA analysis to evaluate the cost and feasibility of mitigation required to reduce the Project's impacts to the greatest extent feasible. Therefore, the City lacks substantial evidence to support a finding that there is "no feasible method" of mitigating these impacts without rendering the Project's affordability component infeasible. As a result, the City cannot make the requisite findings to approve a density bonus in the face of the Project's significant public health and environmental impacts.

The City should deny the requested density bonus unless and until the City prepares an EIR to fully disclose and mitigate these impacts to the greatest extent feasible.[74]

C. The Project is Not Consistent with Substantive Requirements for the Community Plan Exemption

CEQA Guidelines Section 15183 (Community Plan) may apply only when a Project does not have impacts that are peculiar to the proposed project which are

[71] See OPC, §§ 17.107.100(B); 17.107.095.A.1.
[72] Pub. Res. Code §§ 21002.1(a), 21100(b)(3).
[73] See OPC, sec. 17.107.100(B).
[74] OPC, § 17.107.100(B) (density bonus cannot be approved where it would release in an adverse impact, as defined by Gov. Code, § 65589.5(d).)

new or more significant than previously analyzed, or which can be substantially mitigated by uniformly applicable development policies or standards.

The Project fails to meet these requirements because the site is highly contaminated and could pose a significant risk to construction workers, residents and off-site receptors which was not fully disclosed or analyzed under the WOSP. Furthermore, the Project's health risks from diesel particulate matter ("DPM") emissions during construction may be highly significant. In particular, because the WOSP did not actually quantify project-level health risks, the absence of any previous project-specific analysis undermines the City's determination that SCAs would mitigate the impact. Unfortunately, the WOSP did not fully address these peculiar and more significant impacts, and there are mitigation measures not previously identified that would reduce these significant impacts. Moreover, the City's reliance on SCAs to mitigate these impacts, without first analyzing them in an EIR, violates the requirements of Section 15183, rendering it inapplicable to the Project.

Thus, the Project will have new or more severe significant impacts than previously analyzed in the WOSP EIR. In addition, as described below, the site-specific analysis conducted for the Project is legally deficient in several ways and the CEQA Analysis fails to incorporate all feasible mitigation. Therefore, the City may not rely on the CEQA Analysis for Project approval, and must provide detailed analysis of the Project's impacts in a subsequent or supplemental EIR.

D. The CEQA Analysis Fails to Adequately Analyze and Mitigate On-Site Hazards

1. *Project Site Contamination Has Not Been Adequately Disclosed and Mitigated*

The CEQA Analysis inaccurately concludes that existing soil and groundwater contamination is less than significant.[75] But, the site is identified as a Cleanup Program Site on the State Water Resources Control Board ("SWRCB") GeoTracker database due to previous potential groundwater contamination.[76] The SWRCB determined that "[t]here is no potential exposure to chemicals of concern

[75] CEQA Analysis, p. 62.
[76] https://geotracker.waterboards.ca.gov/profile_report?global_id=T06019794669.

for current commercial land use as a vacant lot."[77] This Project proposes to convert the site from a vacant lot to a residential project. Because residual subsurface contamination remains at the site at levels that exceed residential screening levels. The site is also subject to existing regulatory conditions requiring that, if any redevelopment occurs including the change in land use to residential, the Alameda County Department of Environmental Health ("ACEH") must be notified as required by Government Code Section 65850.2. ACEH must also be notified if any construction or excavation activities take place or the building structure is otherwise modified. The CEQA Analysis provides to evidence that ACDEH has been contacted about the Project, or that the City consulted with ACDEH when preparing the CEQA document.

In June 2016, the SWRCB collected 27 soil samples and 2 grab groundwater samples at the Project site. "The analytical results for the fill showed that some PAHs were elevated above the ESLs for residential land use …Groundwater results indicate that there is TPH-g, TPH-d, BTEX and TBA impacts to groundwater in the norther portion of the site."[78] The SWRCB wrote, "[t]he most likely source of this contamination is the railroad right-of-way immediately north of the site or the former service station located approximately 175 feet north of the site."[79] Groundwater was noted at depths of about 1 to 2 feet BSG at the Project site.[80] Shallow groundwater reduces the depth of unsaturated soil available for treatment, increasing the likelihood of groundwater contamination.[81]

The site's Phase II Subsurface Investigation Work Plan[82] contradicts the unsupported conclusions articulated in the CEQA Analysis, and demonstrates that there are significant levels of existing contamination at the site which pose a potentially significant health risk to the public.[83] The SWRCB soil samples detected Polycyclic Aromatic Hydrocarbons (PAHs) in the soil on the Project site.

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[77] State Water Resources Control Board GeoTracker Red Star Yeast/1396 Fifth Street LLC (T06019794669) *available at:* https://geotracker.waterboards.ca.gov/profile_report?global_id=T06019794669.
[78] *Id.*
[79] *Id.*
[80] CEQA Analysis, Attachment E. Geotechnical Analysis, p. E-5.
[81] EPA, Getting Up To Speed: Ground Water Contamination, https://www.epa.gov/sites/production/files/2015-08/documents/mgwc-gwc1.pdf.
[82] Citadel Environmental, Phase II subsurface Investigation Work Plan – Draft, (May 13, 2016) *available* at: https://dehpra.acgov.org/LOP/Lopinfo/ReadFile?filePath=%5C%5Cac01fs8600.acgov.org%5CLOPIMAGE%5CPDF%5CRO0002896%5CCORRES_L_2016-06-23_2.pdf.
[83] SWAPE Comments, p. 2.

Because the CEQA Analysis fails to disclose the Project's significant levels of contamination, it also fails to analyze the potentially significant health effects of the Project.[84] In particular, the CEQA Analysis fails to include any quantified study or discussion of the health risks that may result when Project construction workers encounter contaminated soil when conducting earthmoving activities, or from tracking that contamination off-site. The CEQA analysis also fails to evaluate the potential that future residents, Project site workers and visitors will contact contaminated soil. SWAPE determined that any such persons who come into contact with Project-site contaminants may be subject to central nervous system impairments and effects to the blood, immune system, lungs, skin, and eyes when touching contaminated soil or breathing contaminated dust.[85] This is a potentially significant impact that the City must disclose and analyze in an EIR.

The CEQA Analysis also fails to provide effective mitigation that would target and remove the sources of PAHs and mitigate potential health risks from exposure to chemicals. The US Department of Health and Human Services has determined that some PAHs may reasonably be expected to be carcinogens.[86] The CEQA Analysis provides that SCA-HAZ-2 will require Applicants to submit a comprehensive assessment report documenting the presence or lack thereof of hazardous materials.[87] This report is not made available for public comment and we therefore cannot determine the efficacy of such a report.

The WOSP EIR reported that hazards and hazardous materials impacts would be mitigated to less-than-significant levels with compliance with local, state, and federal regulations for treatment, remediation, and/or disposal of contaminated soil and/or groundwater and the City SCAs that were in effect at the time including SCA-HAZ-1: Hazardous Materials Related to Construction #43, SCA-HAZ-2: Hazardous Building Materials and Site Contamination #44, and SCA-HAZ-3 Hazardous Materials Business Plan #45. However, compliance with applicable regulations does not automatically obviate the need for further analysis of impacts at this pre-approval stage of the Project.

In *Keep our Mountains Quiet v. County of Santa Clara*, neighbors of a wedding venue sued over the County's failure to prepare an EIR due to significant

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[84] SWAPE Comments, p. 2.
[85] SWAPE Comments, p. 2.
[86] Agency for Toxic Substances and Disease Registry, ToxFAQs for Polycyclic Aromatic Hydrocarbon (PAHs), *available at*: https://wwwn.cdc.gov/TSP/ToxFAQs/ToxFAQsDetails.aspx?faqid=121&toxid=25.
[87] CEQA Analysis, p. A-17.

noise impacts. The court concluded that "a fair argument [exists] that the Project may have a significant environmental noise impact" and reasoned that although the noise levels would likely comply with local noise standards, "compliance with the ordinance does not foreclose the possibility of significant noise impacts."[88] The court ordered the County to prepare an EIR. The ruling demonstrates the possibility that a project may be in compliance with an applicable regulation and still have a significant impact.

In *Communities for a Better Env't v. California Res. Agency*, the court struck down a CEQA Guideline because it "impermissibly allow[ed] an agency to find a cumulative effect insignificant based on a project's compliance with some generalized plan rather than on the project's actual environmental impacts."[89] The court concluded that "[i]f there is substantial evidence that the possible effects of a particular project are still cumulatively considerable notwithstanding that the project complies with the specified plan or mitigation program addressing the cumulative problem, an EIR must be prepared for the project."[90] Thus, the ruling supports the notion that despite assured compliance with applicable standard outside of the CEQA process, a lead agency still has an obligation to consider substantial evidence and analyze and mitigate potentially significant impacts.

In *Leonoff v. Monterey County Bd. of Supervisors*, the court held that conditions requiring compliance with regulations are proper "where the public agency had meaningful information reasonably justifying an expectation of mitigation of environmental effects."[91] The ruling suggests that an agency that merely provides a bare assertion that the project will be in compliance with applicable regulations, without further explanation or enforceability, may not fulfill the requirements of CEQA.

Here, the City failed to provide any information explaining how compliance with the outside laws and regulations would reduce the risks posed to workers and residents from the high levels of PAH contamination on the site. The City may not rely solely on compliance with regulations or laws as reducing impacts without a full analysis of impacts or enforceable mitigation. Furthermore, reliance on the WOSP EIR is improper because the WOSP EIR did not conduct a site-specific investigation of the contaminated site.

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[88] *Keep our Mountains Quiet v. County of Santa Clara* (2015) Case No. H039707, p. 21.
[89] *Communities for a Better Env't v. California Res. Agency* (2002) 126 Cal.Rptr.2d 441, 453.
[90] *Id.*
[91] *Leonoff v. Monterey County Bd. of Supervisors* (1990) 222 Cal.App.3d 1337, 1355.

CEQA requires that the City describe all components of the Project that may have a significant impact, and adequately analyze and require mitigation for all potentially significant impacts related to on-site hazards.[92] Here, the City failed to do so in its CEQA Analysis. SWAPE concludes that the site's existing soil and groundwater contamination are significant impacts which require comprehensive analysis and mitigation prior to Project approval. SWAPE explains that Project construction should not be allowed until a full EIR has been prepared to include a thorough assessment and cleanup of the contamination.[93] An EIR must be prepared to remedy the defects in the City's CEQA Analysis of hazardous materials impacts. In particular, this analysis must include proper disclosure and assessment of site contaminants, the risk they pose to the health of construction workers, site visitors and future occupants, and a regulatory agency-approved cleanup plan to address any health risks that the contaminants pose.

2. Dewatering Impacts Have Not Been Adequately Addressed

Under CEQA, a project may have a significant impact if it would violate any water quality standards or waste discharge requirement, create or contribute runoff water that would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff, or otherwise substantially degrade water quality. CEQA and applicable case law require the City to describe all aspects of the Project, and, as explained above, disclose the significance of all impacts and provide separate and enforceable mitigation.[94]

The CEQA Analysis states that dewatering may be required during construction for all excavations extending greater than 5 feet BSG.[95] The CEQA Analysis provides the SALEM report[96], which recommends deep ground improvements such as social cement columns that should extend to depths of at least 25 feet BSG.[97] Thus, dewatering will most likely be required at those depths. SWAPE explains that the contaminated groundwater generated from the dewatering process may pose a potentially significant water quality issue, and that

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[92] *Cal. Build. Indust. Ass'n v. BAAQMD* (2015) 62 Cal.4th 369, 388-90; *Citizens For Responsible Equitable Envt'l Dev. v. City of Chula Vista* (2011) 197 Cal.App.4th 327, 331-2.
[93] SWAPE Comments, p. 2.
[94] *Lotus v. Department of Transportation* (2014) 223 Cal.App.4th 645.
[95] CEQA Analysis, p. 66.
[96] Salem Engineering Group, Inc. 2020. Update Geotechnical Engineering Investigation. *Proposed 8-story Mixed*
Use Retail and Residential Building, 1396 5th Street, West Oakland, California, June 5.
[97] CEQA Analysis, p. 52.
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any contaminated groundwater encountered during Project construction must be handled and disposed in accordance with the San Francisco Bay Regional Water Quality Control Board's NPDES General Permit requirements.[98] SWAPE further notes that the CEQA Analysis fails to consider that groundwater that would be dewatered is known to be contaminated with TCE and other compounds.[99] Nevertheless, the City is still required under CEQA to fully describe, analyze, and mitigate potential impacts from dewatering in its CEQA document.

An EIR must be prepared to analyze the impact and identify the Regional Board's dewatering requirements and how they will be met during Project construction.[100]

E. The CEQA Analysis Fails to Adequately Analyze the Project-Specific Health Risk from Impacts to Air Quality

1. Criteria Pollutants Have Not Been Adequately Addressed or Mitigated

SWAPE determined that the proposed Project's construction related emissions should have been considered by the CEQA Analysis, but were not.[101] As a result, an updated air quality analysis, including an analysis of the Project's construction-related criteria air pollutant emissions, should be prepared in an EIR. Furthermore, SWAPE's review of the Analysis' CalEEMod output files demonstrates that the proposed Project includes 1,600-SF of "High Turnover (Sit Down Restaurant)" in addition to the residential land use.[102] As a result, the above-mentioned BAAQMD guidelines, which apply only to "Apartments, mid-rise," are not applicable to the proposed Project. Thus, the Analysis' air quality significance determination should not be relied upon. Until an analysis is prepared quantifying and comparing the Project's estimated emissions to the applicable BAAQMD thresholds, the proposed Project should not be approved.

2. SCA-AIR-2 Constitutes Impermissibly Deferred Mitigation

CEQA Guidelines Section 15126.4 provides:

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[98] SWAPE Comments, p. 10.
[99] *Id.*
[100] *Id.*
[101] SWAPE Comments, p. 11.
[102] CEQA Analysis, p. F-2.

> Formulation of mitigation measures shall not be deferred until some future time. The specific details of a mitigation measure, however, may be developed after project approval when it is impractical or infeasible to include those details during the project's environmental review provided that the agency (1) commits itself to the mitigation, (2) adopts specific performance standards the mitigation will achieve, and *(3) identifies the type(s) of potential action(s) that can feasibly achieve that performance standard and that will considered, analyzed, and potentially incorporated in the mitigation measure*. Compliance with a regulatory permit or other similar process may be identified as mitigation if compliance would result in implementation of measures that would be reasonably expected, based on substantial evidence in the record, to reduce the significant impact to the specified performance standards".[103]

SCA-AIR-2 impermissibly defers mitigation and fails to identify potential actions that are feasible that could reduce the Project's construction related criteria air pollutant emissions to less than significant levels.[104] An EIR should be prepared incorporating an adequate analysis of the Project's criteria air pollutant emissions and identifying actions that would feasibly reduce the Project's construction-related criteria air pollutant emissions to less-than-significant levels.[105]

The Project's would result in a significant health risk impact that should be mitigated further. In an effort to reduce the Project's emissions, SWAPE identified several mitigation measures that are applicable to the proposed Project.[106] Feasible mitigation measures can be found in BAAQMD's *Community Risk Reduction Plans for Toxic Air Contaminants (TACs) and Fine Particulate Matter* (PM2.5).41 Therefore, to reduce the Project's emissions, consideration of the following measures should be made[107]:

- Zoning to provide segregation from receptors;
- Establishment of zoning buffer zones, such as vegetated areas or wall barriers, around mobile sources;
- Operational hour limitations for truck deliveries;
- Alternative vehicle routing (i.e. re-route truck traffic by adding alternate access for truck traffic or by restricting truck traffic on certain sensitive routes);

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[103] CEQA
[104] SWAPE Comments, p. 13.
[105] *Id.*
[106] SWAPE Comments, p. 23.
[107] SWAPE Comments, p. 23-24.

- Truck parking restrictions (i.e. establish a buffer zone between truck parking and new housing or restrict truck parking in certain areas to specific hours of the day);
- Alternative mobile source fuel requirements;
- Improve road infrastructure to facilitate improved traffic flow without inducing capacity through:
    - Signal synchronization;
    - Locations of on- and off-ramps for freeways;
    - Assessment of speed limits and roadway capacities;
- Provide mechanisms for communication between carriers and operators at facilities such to manage demand and flow at facilities with heavy diesel traffic;
- Require the installation of electrical hookups at loading docks and the connection of trucks equipped with electrical hookups to eliminate the need to operate diesel-powered TRUs at the loading docks;
- Improve alternative transportation options such as biodiesel or CNG-powered buses, light rail, community shuttles, etc.
- Require new development to incorporate:
    - Bicycle parking, bicycle infrastructure (i.e. bike lanes and bike racks), and "end-of-trip" facilities;
    - Pedestrian infrastructure (i.e. pedestrian network, minimize barriers, etc.);
    - Traffic calming measures;
    - Bus shelters on the perimeter of development;
    - Parking measures (paid parking, shared parking among land uses, and preferential parking for alternative-fueled vehicles, etc.);
    - Incentives for ridesharing and use of alternative-fueled vehicles (carpool lanes, electric vehicle charging stations, car-share programs, etc.);
    - Smart landscaping utilizing vegetation which requires minimal maintenance; and
    - Electrical outlets at building exterior areas and complimentary electric lawnmowers for residents.

These measures offer a cost-effective, feasible way to incorporate lower-emitting design features into the proposed Project, which subsequently, reduce TAC emissions released during Project construction and operation. An EIR should be prepared to include all feasible mitigation measures, as well as include an updated health risk analysis to ensure that the necessary mitigation measures are implemented to reduce emissions to below thresholds. The EIR should also demonstrate a commitment to the implementation of these measures prior to Project approval, to ensure that the Project's significant emissions are reduced to the maximum extent possible.

3. Diesel Particulate Matter Health Risk Emissions Have Not Been Adequately Analyzed or Mitigated

The WOSP EIR determined that health risk impacts posed to future, on-site receptors as a result of exposure to DPM would be less than significant.[108] However, the CEQA Analysis determined that the health risk impacts as a result of the Project's proximity to the I-880 would be significant and unavoidable.[109] These statements are inconsistent and not supported by substantial evidence.

An impact can only be labeled as significant and unavoidable after all available, feasible mitigation is considered. Review of the CEQA Checklist demonstrates that the Project fails to consider all feasible mitigation measures that would provide for mitigation from air quality impacts. "[P]ublic agencies should not approve projects as proposed if there are feasible alternatives or feasible mitigation measures available which would substantially lessen the significant environmental effects of such projects…"[110] An EIR must be prepared to adequately analyze all feasible mitigation measures.

SWAPE determined there are a number of mitigation measures that the City failed to consider in the CEQA Analysis. The CEQA Analysis fails to mention or assess additional non-cancer, freeway-related health risks, including asthma. As such, an EIR should be prepared to include an assessment of all health risks, not only cancer, faced by residents at the Project site, especially to sensitive groups, such as newborns and the elderly. Furthermore, because of the Project's proximity to the I-880, all feasible mitigation should be considered in the EIR to reduce health impacts to people living at the project.

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[108] WOSP EIR, p. 4.2-50.
[109] CEQA Analysis, p. 44-45.
[110] California Code of Regulation, Title 14, Chapter 3, § 21002.

Feasible mitigation, implemented at other Southern California projects adjacent to freeways include:

- Disclose to residents the potential health impacts from living in proximity to the I-880 freeway;
- Installation, use, and maintenance of filtration systems with at least a Minimum Efficiency Reporting Value (MERV) 15;
- Lead Agency verification and certification of the implementation the filtration systems;
- Lead Agency verification of maintenance to include manufacturer's recommended filter replacement schedule;
- Disclosure to residents that opening windows will reduce the health-protectiveness of the filter systems.

4. TACs from 880 Freeway Have Not Been Adequately Addressed or Mitigated

The Project site is within 500 feet of I-880 and subject to emissions from the I-8880 freeway that are indicated to result in a risk of contracting cancer.[111] The projects exceeds the threshold level of 10 in one million risk of contracting cancer.[112] SWAPE estimated that an excess cancer risk of approximately 82 in one million over the course of a residential lifetime (30 years), utilizing age sensitivity factors.[113] Without the age sensitivity factors, the cancer risk still exceeds the

[111] CEQA Analysis, p. 44.
[112] SWAPE Comments, p. 21.
[113] SWAPE Comments, p. 21.

BAAQMD threshold. SWAPE's modeling is shown in the figure below.

The Closest Exposed Individual at an Existing Residential Receptor

Activity	Duration (years)	Concentration (ug/m3)	Breathing Rate (L/kg-day)	Cancer Risk without ASFs*	ASF	Cancer Risk with ASFs*
Construction	0.25	0.3549	361	4.1E-07	10	4.1E-06
3rd Trimester Duration	***0.25***			***4.1E-07***	***3rd Trimester Exposure***	***4.1E-06***
Construction	0.69	0.3549	1090	3.4E-06	10	3.4E-05
Operation	1.31	0.09015	1090	1.6E-06	10	1.6E-05
Infant Exposure Duration	***2.00***			***5.1E-06***	***Infant Exposure***	***5.1E-05***
Operation	14.00	0.09015	572	7.8E-06	3	2.3E-05
Child Exposure Duration	***14.00***			***7.8E-06***	***Child Exposure***	***2.3E-05***
Operation	14.00	0.09015	261	3.6E-06	1	3.6E-06
Adult Exposure Duration	***14.00***			***3.6E-06***	***Adult Exposure***	***3.6E-06***
Lifetime Exposure Duration	**30.00**			**1.7E-05**	**Lifetime Exposure**	**8.2E-05**

* We, along with CARB and BAAQMD, recommend using the more updated and health protective 2015 OEHHA guidance, which includes ASFs.

An agency must include an analysis of health risks that connect the Project's air emissions with the health risk posed by those emissions.[114] SWAPE's screening-level health risk analysis demonstrates that construction and operation of the Project could result in a potentially significant health risk impact, when correct exposure assumptions and up-to-date, applicable guidance are used.[115] Consistent with recommendations set forth by OEHHA, SWAPE assumed residential exposure begins during the third trimester stage of life.[116] The Analysis' CalEEMod output files indicate that construction activities will generate approximately 188 pounds of DPM over the 343-day construction period.[117]

SWAPE determined, as demonstrated in the table above, the excess cancer risk to adults, children, infants, and during the 3rd trimester of pregnancy at the MEIR located approximately 125 meters away, over the course of Project construction and operation, with ASFs, are approximately 3.6, 23, 51, and 4.1 in one

[114] SWAPE Comments, p. 21; *Sierra Club v. County of Fresno* (2018) 6 Cal.5th 502, 525.
[115] SWAPE Comments, p.21
[116] *Id.* at 19.
[117] *Id.*

million, respectively. We estimate an excess cancer risk of approximately 82 in one million over the course of a residential lifetime (30 years), utilizing age sensitivity factors. The infant, child, and lifetime cancer risks exceed the BAAQMD threshold of 10 in one million, thus resulting in a potentially significant impact not previously addressed or identified by the Analysis.[118]

Therefore, since our screening-level health risk analysis indicates a potentially significant impact, the City should prepare an EIR with a health risk analysis which makes a reasonable effort to connect the Project's air quality emissions and the potential health risks posed to nearby receptors.[119] Thus, the City should prepare an updated, quantified air pollution model as well as an updated, quantified refined HRA which adequately and accurately evaluates health risk impacts associated with both Project construction and operation.[120]

The Project is subject to PM2.5 concentrations that exceed the threshold of 0.3 ug/m3.[121] In addition, the project site is located approximately 380 feet from a stationary source.[122] The CEQA Analysis states that "cumulative conditions and project-level impacts related to the emissions of TACs during project operations would be significant and unavoidable."[123] Further, the CEQA Analysis states that "[t]here are no known feasible technologies or site planning considerations that have been shown to reduce risks of gaseous TACs.[124] Therefore, impacts related to gaseous TACs would be significant and unavoidable, since SCA requirements are not sufficient to reduce the risk to acceptable levels."[125] This statement is not supported by substantial evidence. Mitigation measures could and should have been considered as feasible to reduce the impacts to less than significant.

The WOSP EIR identifies SCAs to minimize impacts to air quality, but recognizes that they cannot with certainty reduce risks to an acceptable level.[126] CEQA requires that mitigation measures be "fully enforceable through permit conditions, agreements, or other legally binding instruments."[127] Further,

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[118] SWAPE Comments, p. 22.
[119] *Id.* at 21.
[120] *Id.* at 21.
[121] CEQA Analysis, p. 45.
[122] *Id.*
[123] *Id.*
[124] *Id.*
[125] CEQA Analysis, p. 45.
[126] CEQA Analysis, p. 45.
[127] CEQA Guidelines, § 15126.4(a)(2).

mitigation measures that are vague or so undefined that it is impossible to evaluate their effectiveness are legally inadequate.[128] The SCA proposed to reduce air quality impacts to less than significant are so vague and undefined that it is impossible to evaluate their effectiveness, they are therefore inadequate. An EIR is required to adequately mitigate impacts to air quality from construction and operation of the Project.

5. Diesel-Powered Emergency Generator Impacts Have Not Been Adequately Addressed or Mitigated

The Project may include an emergency diesel generator.[129] Diesel-powered generators emit diesel particulate matter ("DPM"), a toxic air contaminant ("TAC"). The CEQA Analysis determined that the project-level impacts related to emissions of TACs during project operations would be significant and unavoidable, consistent with WOSP Air-9, and thus no further analysis is required. This statement is not supported by substantial evidence. The WOSP EIR requires mitigation measure AIR-9 for applicants for projects that would include backup generators to prepare a Risk Reduction Plan for City review and approval.[130] The Risk Reduction Plan "shall reduce cumulative localized cancer risks to the maximum feasible extent."[131] The Project's reliance on the Risk Reduction Plan for WOSP is misplaced. The Applicant must prepare a Risk Reduction Plan for City review and approval for *this* Project.

The CEQA Analysis relies on SCA-AIR-5 which requires that Applicants prepare a Health Risk Assessment ("HRA") in accordance California Air Resources Board (CARB) and Office of Environmental Health and Hazard Assessment requirements to determine the health risk associated with proposed stationary sources of pollution in the project.[132] Alternatively, the SCA requires the Applicant to implement health risk reduction measures including the selection of non-diesel generators or the use of diesel generators with an EPA-certified Tier 4 engine.[133] The CEQA analysis provides that this is required, but then states that "[e]xisting and new diesel generators shall meet CARB's Tier 4 emission standards, if

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[128] *San Franciscans for Reasonable Growth v. City & County of San Francisco* (1984) 151 Cal.App.3d 61, 79.
[129] CEQA Analysis, p. 44.
[130] CEQA Analysis, p. D-2; West Oakland Specific Plan Environmental Impact Report ("WOSP EIR"), p. 4.2-44.
[131] WOSP EIR, p. 2-13.
[132] WOSP EIR, p. 4.2-44.
[133] CEQA Analysis, p. A-8.

feasible."[134] This does not constitute a mandatory mitigation measure. "Mitigation measures must be fully enforceable though permit conditions, agreements, or other legally binding instruments."[135] Further, CEQA prohibits deferring identification of mitigation measures when there is uncertainty about the efficacy of those measures.[136] An agency may only defer formulation of mitigation measures when there is a clear commitment to mitigation that will be measured against specific performance criteria.[137]

The CEQA Analysis is therefore inconsistent with the WOSP because it fails to incorporate all mitigation required under the WOSP to reduce health risks to the surrounding community. In addition, the health risk impact disclosed by SWAPE from DPM emissions during construction presents new information showing a significant impact, which the WOSP explained could not have been known at the Project level, and which was not discussed in the WOSP EIR.[138] Therefore, an EIR is required for the Project and the City may not rely on the CEQA Analysis for Project approval.

6. The CEQA Analysis Fails to Implement All Feasible Mitigation to Reduce Odor Impacts

The CEQA Analysis determined that odor impacts are significant and unavoidable. SWAPE determined that the impacts are significant. But the statement that the odor impacts are unavoidable is not supported by substantial evidence. Mitigation is available to reduce odor impacts including: zoning to provide buffer from receptors; establishment of zoning buffer zones, such as vegetated areas or wall barriers, around mobile sources; operational hour limitations for truck deliveries and others addressed in SWAPE's expert comments.

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[134] *Id.* at p. 10.
[135] CEQA Guidelines, § 15126.4(a)(2).
[136] 14 C.C.R. § 15126.4(a)(1)(B); *City of Marina v. Board of Trustees of the California State University* (2006) 39 Cal.4th 341, 366; *Sundstrom v. County of Mendocino* (1988) 202 Cal.App.3d 296, 308–309.
[137] *POET, LLC v. California Air Res. Bd.* (2013) 218 Cal.App.4th 681, 736, 739–740, as modified on denial of reh'g (Aug. 8, 2013), review denied (Nov. 20, 2013); see also *Preserve Wild Santee v. City of Santee* (2012) 210 Cal.App.4th 260, 281 (EIR deficient for failure to specify performance standards in plan for active habitat management of open space preserve).
[138] SWAPE Comments, p. 21.
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F. The CEQA Analysis Fails to Adequately Analyze and Mitigate Greenhouse Gas Emissions

1. The Project is Inconsistent with ECAP

The Project is inconsistent with the City of Oakland's Energy and Climate Action Plan ("ECAP"). SWAPE reviewed the Project's CALEEMod output files provided in CEQA Analysis Attachment F, and determined that "several of the values inputted into the model are not consistent with information disclosed in the Analysis and associated documents."[139] The emissions calculated for the CEQA Analysis are underestimated.[140] As such, the determination that GHG emissions are less than significant is not supported by substantial evidence and is not consistent with the ECAP.

SWAPE conducted an updated CALEEMOD model and found the Project's construction-related ROG and NOx emissions exceed the applicable BAAQMD thresholds.[141] SWAPE's model demonstrates that the Project would result in a potentially significant air quality impact that was not previously identified or addressed in the Analysis. The figure below shows SWAPE's calculations.

Model	ROG	NO_x
SWAPE Construction	280.4049	122.7616
BAAQMD Threshold (lbs/day)	**54**	**54**
Threshold Exceeded?	***Yes***	***Yes***

The CEQA Checklist states that the Project will implement SCAs to reduce GHGs, but also states that the WOSP EIR did not identify any mitigation measures related to GHGs, and none are required for the proposed project.[142] "No GHG Reduction Plan under SCA-GHG-1: Greenhouse Gas (GHG) Reduction Plan (#42) is required."[143] The GHG emissions from the Project are significant and unmitigated. SWAPE determined that compliance with Title 24 would not constitute sufficient

[139] SWAPE Comments, p. 4.
[140] SWAPE Comments, p. 4.
[141] SWAPE Comments, p. 13.
[142] CEQA Analysis, p. 59.
[143] CEQA Analysis, p. 59.

mitigation.[144] "Simply because the 2019 Title 24 standards expect a reduction in building energy consumption does not guarantee that any measures will be implemented and result in actual reductions locally on the Project site." Further, "[a]bsent additional information demonstrating that these reductions would be achieved through the implementation, monitoring, and enforcement of energy-related mitigation measures, [SWAPE is] unable to verify the revised energy use values inputted into the model."[145] Therefore, the CEQA Analysis provides GHG modeling that is not based on substantial evidence.

The Project likely relies on CEQA Guidelines § 15064(h)(3) in determining the less than significant impact. CEQA Guidelines § 15064(h)(3) provides that Projects that are consistent with the CAP, may be found to cause a less than significant impact under CEQA.[146] In *Center for Biological Diversity v. Department of Fish and Wildlife*, the California Supreme Court held that Department of Fish and Wildlife's "failure to provide substantial evidentiary support for its no significant impact conclusion was prejudicial, in that it deprived decision makers and the public of substantial relevant information about the project's likely impacts."[147] The reliance on the ECAP without substantial evidentiary support, makes the CEQA Checklist inadequate.

Further, CEQA requires the lead agency to use scientific data to evaluate GHG impacts directly and indirectly associated with a project.[148] The analysis must "reasonably reflect evolving scientific knowledge and state regulatory schemes."[149] In determining the significance of GHG emissions impacts, the agency must

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[144] SWAPE Comments, p. 4.
[145] SWAPE Comments, p. 4-5.
[146] California Office of Planning and Research, General Plan Guidelines Chapter 8 Climate Change,
[147] *(Newhall Ranch)* (2015) 62 Cal.4th 204, 264.
[148] See 14 C.C.R. § 15064.4(a) (lead agencies "shall make a good-faith effort, based to the extent possible on scientific and factual data, to describe, calculate or estimate the amount of greenhouse gas emissions resulting from a project); 14 C.C.R. § 15064(d) (evaluating significance of the environmental effect of a project requires consideration of reasonably foreseeable indirect physical changes caused by the project); 14 C.C.R. § 15358(a)(2) (defining "effects" or "impacts" to include indirect or secondary effects caused by the project and are "later in time or farther removed in distance, but are still reasonably foreseeable" including "effects on air"); CEQA Guidelines, Appendix G, § VIII: Greenhouse Gas Emissions (stating agencies should consider whether the project would "generate greenhouse gas emissions, ***either directly or indirectly***, that may have a significant impact on the environment.") (emphasis added).
[149] 14 C.C.R. § 15064.4(b); see also *Cleveland National Forest Foundation v. San Diego Assn. of Governments* (2017) 3 Cal.5th 497, 504 (holding that lead agencies have an obligation to track shifting regulations and to prepare EIRs in a fashion that keeps "in step with evolving scientific knowledge and state regulatory schemes").

consider the extent to which the project may increase GHG emissions compared to the existing environmental setting and the "extent to which the project complies with regulations or requirements adopted to implement a statewide, regional, or local plan for the reduction or mitigation of greenhouse gas emissions."[150] City of Oakland's ECAP requires projects that exceed any CEQA threshold to implement mitigation measures and comply with the City's standard conditions of approval ("SCAs"). However, the CEQA Checklist fails to estimate and evaluate the proposed Project's GHG emissions based on any quantitative thresholds whatsoever. This informational deficiency violates CEQA. An EIR must be prepared.

An EIR should be prepared to include an adequate evaluation and mitigation of the proposed Project's GHG emissions to ensure that impacts are reduced to a less than significant level.

G. The CEQA Analysis Fails to Adequately Analyze and Mitigate Impacts from Noise and Vibration

1. Acoustical Study and Vibration Reduction Plan Not Provided for Public Review Ahead of Project Approval

The CEQA Analysis states that the Applicant would submit a Vibration Reduction Plan and implement vibration reduction measures, but these measures are not available for public review to determine whether they would constitute effective mitigation. CEQA requires public agencies to avoid or reduce environmental damage when "feasible" by requiring consideration of environmentally superior alternatives and adoption of all feasible mitigation measures.[151] If the project will have a significant effect on the environment, the agency may approve the project only if it finds that it has "eliminated or substantially lessened all significant effects on the environment" to the greatest extent feasible and that any unavoidable significant effects on the environment are "acceptable due to overriding concerns."[152] CEQA prohibits deferring identification

[150] 14 C.C.R. § 15064.4(b)(1), (3).
[151] 14 C.C.R. § 15002(a)(2), (3); *see also Berkeley Jets*, 91 Cal.App.4th at 1354; *Citizens of Goleta Valley*, 52 Cal.3d at 564.
[152] Public Resources Code § 21081(a)(3), (b); 14 C.C.R. §§ 15090(a), 15091(a), 15092(b)(2)(A), (B); *Covington v. Great Basin Unified Air Pollution Control Dist.* (2019) 43 Cal.App.5th 867, 883.

of mitigation measures when there is uncertainty about the efficacy of those measures.[153]

The CEQA Checklist provides that the Project would adhere to City of Oakland's SCAs and require operational noise to meet applicable noise performance standards. The courts have held that compliance with regulations, including noise ordinances, is not an adequate significance threshold because it does not foreclose the possibility of significant impacts.[154] Similarly, here, compliance with the SCAs does not assure that noise impacts will be less than significant.

CEQA requires mitigation measures to be enforceable through binding conditions.[155] CEQA also requires agencies to conclude that an impact is less than significant only after it produces rigorous analysis and concrete substantial evidence justifying the finding. The proposed measures thus violate CEQA by failing to show not only how they will achieve reduction below the threshold of significance, but what is the level of reduction they set to achieve. Moreover, many of the measures include phrases such as "where feasible", and "if such measures are feasible", making them completely unenforceable, in violation of CEQA.

A DEIR must be prepared to include enforceable mitigation measures and support with evidence the levels of noise reduction these measures will achieve.

III. CONCLUSION

As this letter and attached expert report demonstrates, the proposed Project is likely to create potentially significant impacts to air quality and public health, and from hazardous materials, GHGs, noise, and traffic. These impacts constitute new information demonstrating that the Project has new and more severe impacts than disclosed, analyzed, and mitigated in the EIR prepared for the WOSP. These impacts are not adequately mitigated by the SCAs proposed for the Project, and require full disclosure and mitigation in an EIR.

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[153] 14 C.C.R. § 15126.4(a)(1)(B); *City of Marina v. Board of Trustees of the California State University* (2006) 39 Cal.4th 341, 366; *Sundstrom v. County of Mendocino* (1988) 202 Cal.App.3d 296, 308–309.
[154] *Keep our Mountains Quiet v. Santa Clara* (2015) 236 Cal.App.4th 714, 733; *CBE v. CRA* (2002) 103 Cal.App.4th 98, 115-16; *King & Gardiner Farms, LLC v. County of Kern* (2020) 45 Cal.App.5th 814, 893, as modified on denial of reh'g (Mar. 20, 2020)
[155] 14 C.C.R. § 15126.4(a)(2).
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Moreover, because an EIR is required, the City cannot approve the proposed Project using a Minor CUP. And, even if the City could issue a Minor CUP in these circumstances, which it cannot, the City's findings under the general permit review criteria are not supported by substantial evidence.

To comply with the law, the City must withdraw the CEQA Analysis and direct Staff to prepare a subsequent or supplemental EIR for public review and comment, which discloses, analyzes, and mitigates these impacts, and considers a reasonable range of environmentally-superior alternatives to the proposed Project.

Thank you for considering our comments. Please place this comment letter and attachments in the record of proceedings for this matter.

Sincerely,

Kelilah D. Federman
Associate Attorney

KDF:acp
Attachment

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EXHIBIT A

SWAPE Technical Consultation, Data Analysis and Litigation Support for the Environment

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March 3, 2021

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601 Gateway Blvd #1000
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Subject: Comments on the 1396 5th Street Project

Dear Ms. Federman,

We have reviewed the February 2021 CEQA Analysis ("Analysis") for the 1396 5th Street Project ("Project") located in the City of Oakland ("City"). The Project proposes to construct a 216,666-SF building, including 183,366-SF of residential space and a 33,300-SF garage, on the 0.88-acre site.

Our review concludes that the Analysis fails to adequately evaluate the Project's hazards and hazardous materials, air quality, health risk, and greenhouse gas impacts. As a result, emissions and health risk impacts associated with construction and operation of the proposed Project are underestimated and inadequately addressed. An EIR should be prepared to adequately assess and mitigate the potential hazards and hazardous materials, air quality, health risk, and greenhouse gas impacts that the project may have on the surrounding environment.

Hazards and Hazardous Materials

Project Site Cleanup Status Misrepresented, Contamination is Undisclosed, and Mitigation is Inadequate

The Project is located on a cleanup site as identified in the Analysis:

> "[T]he site is identified as a Cleanup Program Site on the State Water Resources Control Board GeoTracker database due to previous potential groundwater contamination. The case cleanup was completed and closed as of May 10, 2017" (p. 7).

However, the Analysis fails to provide the proper context for the site closure that is cited above. The Project site was closed for the current land use (a parking lot) and residential land use as envisioned in the Analysis requires regulatory approval by the Alameda County Department of Environmental Health. No mention is made of this requirement in the Analysis.

The GeoTracker website[1] includes this narrative for the former Red Star Yeast cleanup, located on the Project site:

> "Future Site Management Requirements: Due to residual contamination at the site and due to the current owner not planning further redevelopment, the site is closed to its commercial land use as a vacant lot with site management requirements. If there is a proposed change in land use to any residential, or conservative land use, or if any redevelopment occurs, ACDEH [Alameda County Department of Environmental Health] must be notified as required by Government Code Section 65850.2.2. ACDEH will re-evaluate the site relative to the proposed redevelopment. Excavation or construction activities in areas of residual contamination require planning and implementation of appropriate health and safety procedures by the responsible party prior to and during excavation and construction activities."

The GeoTracker website for the Project also includes this information which was not acknowledged in the Analysis

> "In June 2016, under Alameda County Department of Environmental Health oversight, soil and groundwater samples were collected to address data gaps because the fill used for the Project site was undocumented, because of concerns about lead in native soil below the fill, and the need for further characterization of soil and groundwater. The analytical results for the fill showed that some PAHs [polycyclic aromatic hydrocarbons] were elevated above the ESLs [Environmental Screening Levels[2]] for residential land use, but PAHs were below commercial land use ESLs. Groundwater sample results indicate TPH-g, [total petroleum hydrocarbons-gas] TPH-d {-diesel], BTEX {benzene, toluene, ethylbenzene, xylene] and TBA [tert butyl alcohol] impacts to groundwater in the norther portion of the site."

Without proper cleanup, construction workers and future residents of the Project may be exposed to contaminated soil. PAHs may be reasonably expected to cause cancer.[3] Some of the TPH compounds can affect the central nervous system while others can cause effects on the blood, immune system, lungs, skin, and eyes.[4]

The Analysis, in stating only "case cleanup was completed and closed as of May 10, 2017" (p. 7) fails to document contamination that remains on the Project site in excess of residential screening levels. The

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[1] https://geotracker.waterboards.ca.gov/profile_report?global_id=T06019794669

[2] https://www.waterboards.ca.gov/sanfranciscobay/water_issues/programs/esl.html#:~:text=Environmental%20Screening%20Levels%20The%20Environmental%20Screening%20Levels%20(ESLs),evaluation%20of%20potential%20environmental%20concerns%20at%20contaminated%20sites.

[3] https://wwwn.cdc.gov/TSP/ToxFAQs/ToxFAQsDetails.aspx?faqid=121&toxid=25

[4] https://wwwn.cdc.gov/TSP/ToxFAQs/ToxFAQsDetails.aspx?faqid=423&toxid=75

Analysis also fails to state the critical condition of the closure as cited above, i.e., "if there is a proposed change in land use to any residential, or conservative land use, or if any redevelopment occurs," ACDEH is to be notified for reevaluation of the Project site conditions.

The Analysis only includes this deficient SCA to address Project site contamination:

> "SCA-HAZ-1: Hazardous Materials Related to Construction (#42)
>
> If soil, groundwater, or other environmental medium with suspected contamination is encountered unexpectedly during construction activities (e.g., identified by odor or visual staining, or if any underground storage tanks, abandoned drums or other hazardous materials or wastes are encountered), the project applicant shall cease work in the vicinity of the suspect material, the area shall be secured as necessary, and the applicant shall take all appropriate measures to protect human health and the environment. Appropriate measures shall include notifying the City and applicable regulatory agency(ies) and implementation of the actions described in the City's Standard Conditions of Approval, as necessary, to identify the nature and extent of contamination. Work shall not resume in the area(s) affected until the measures have been implemented under the oversight of the City or regulatory agency, as appropriate."

SCA-HAZ-1 speaks as if contamination is unknown in stating "If soil, groundwater, or other environmental medium with suspected contamination is encountered unexpectedly during construction activities" when in fact contamination above residential screening levels is known. Also, SCA-HAZ-1 fails to name the ACDEH as the regulatory agency that is to be notified of any development activities for review and approval prior to development.

An EIR is necessary for the Project to disclose known soil and groundwater contamination at the Project site. An EIR is also necessary to document that ACDEH was notified of the Project and the proposed land use change from commercial to residential and to document their approval for redevelopment activities.

Greenhouse Gas

Failure to Adequately Evaluate Greenhouse Gas Impacts

The Analysis relies upon CalEEMod to model the Project's construction and operational greenhouse gas ("GHG") emissions. As a result, the Analysis estimates that the Project would generate 0.58 metric tons of carbon dioxide equivalents per service population per year ("MT CO_2e/SP/year"), which would not exceed the BAAQMD threshold of 4.6 MT CO_2e/SP/year (see excerpt below) (p. 58, Table 5).

TABLE 5 SUMMARY OF GHG EMISSIONS FROM OPERATION OF THE PROJECT

Emission Source	CO_2e (MT/year/SP)
Construction[a]	0.02
Operation – Area	<0.01
Operation – Energy[a]	0.46
Operation – Mobile[a]	0.00
Operation – Waste	0.06
Operation – Water	0.04
Total Project Emissions[a]	0.58
Threshold of Significance	4.6
Threshold Exceedance?	**No**

Furthermore, the Analysis relies upon the Project's consistency with the City's ECAP, *California's 2017 Climate Change Scoping Plan*, and the *Plan Bay Area* in order to conclude that the Project would result in a less-than-significant GHG impact (p. 59-60). However, the Analysis' GHG analysis, as well as the subsequent less-than-significant impact conclusion, is incorrect for two reasons.

(1) The Analysis' GHG analysis relies upon an incorrect and unsubstantiated air model; and
(2) The Analysis incorrectly relies upon an outdated threshold.

1) Unsubstantiated Input Parameters Used to Estimate Project Emissions

According to the Analysis, the Project's GHG analysis relies on emissions calculated from the California Emissions Estimator Model Version CalEEMod.2016.3.2 ("CalEEMod") (p. 57).[5] CalEEMod provides recommended default values based on site specific information, such as land use type, meteorological data, total lot acreage, project type and typical equipment associated with project type. If more specific project information is known, the user can change the default values and input project-specific values, but CEQA requires that such changes be justified by substantial evidence.[6] Once all of the values are inputted into the model, the Project's construction and operational emissions are calculated, and "output files" are generated. These output files disclose to the reader what parameters were utilized in calculating the Project's GHG emissions and make known which default values were changed as well as provide a justification for the values selected.[7]

When we reviewed the Project's CalEEMod output files, provided in the "Greenhouse Gas Analysis; CalEEMod" as Attachment F to the Analysis, we found that several of the values inputted into the model are not consistent with information disclosed in the Analysis and associated documents. As a result, emissions associated with the Project are underestimated. An EIR should be prepared that adequately assesses the potential GHG impacts that construction and operation of the proposed Project may have.

[5] CalEEMod website, *available at*: http://www.caleemod.com/
[6] CalEEMod User Guide, p. 2, 9, *available at:* http://www.caleemod.com/
[7] "CalEEMod User's Guide." CAPCOA, November 2017, *available at:* http://www.caleemod.com/ (A key feature of the CalEEMod program is the "remarks" feature, where the user explains why a default setting was replaced by a "user defined" value. These remarks are included in the report.), p. 7, 13.

Unsubstantiated Changes to Energy Use Values

Review of the CalEEMod output files demonstrates that the "Red Star Senior Housing v2" model includes several changes to the default energy use values (see excerpt below) (Attachment F, pp. 187)

Table Name	Column Name	Default Value	New Value
tblEnergyUse	LightingElect	741.44	572.00
tblEnergyUse	LightingElect	5.34	3.11
tblEnergyUse	T24E	426.45	380.80
tblEnergyUse	T24E	2.67	2.38

As previously mentioned, the CalEEMod User's Guide requires any changes to model defaults be justified.[8] According to the "User Entered Comments and Non-Default Data" table, the justification provided for these changes is: "Energy intensity updated to 2019 Title 24 code" (Attachment F, pp. 187). Furthermore, the Analysis states that the Project would comply with Title 24 (p. 87) However, these justifications are insufficient. Simply because the 2019 Title 24 standards *expect* a reduction in building energy consumption does not *guarantee* that any measures will be implemented and result in actual reductions locally on the Project site. Absent additional information demonstrating that these reductions would be achieved through the implementation, monitoring, and enforcement of energy-related mitigation measures, we are unable to verify the revised energy use values inputted into the model.

These unsubstantiated reductions present an issue, as CalEEMod uses the energy use values to calculate the Project's emissions associated with building electricity and non-hearth natural gas usage.[9] By including unsubstantiated changes to the default energy use values, the model may underestimate the Project's energy-source operational emissions and should not be relied upon to determine Project significance.

Failure to Substantiate Material Import and Export

Review of the CalEEMod output files demonstrates that the "Red Star Senior Housing v2" model includes 3,000 cubic yards ("cy") of material export and material import (see excerpt below) (Attachment F, pp. 187).

Table Name	Column Name	Default Value	New Value
tblGrading	MaterialExported	0.00	3,000.00
tblGrading	MaterialImported	0.00	3,000.00

As previously mentioned, the CalEEMod User's Guide requires any changes to model defaults be justified.[10] According to the "User Entered Comments and Non-Default Data" table, the justification provided for this change is: "It is anticipated and cuts and fills during earthwork will be on the order of 1 to 2 feet. Assume 2 feet of cuts and imported fills would be required on entire site, i.e., 3 kcy"

[8] CalEEMod User Guide, *available at:* http://www.caleemod.com/, p. 2, 9
[9] CalEEMod User Guide, *available at:* http://www.caleemod.com/, p. 43
[10] CalEEMod User Guide, *available at:* http://www.caleemod.com/, p. 2, 9

(Attachment F, pp. 187). However, the DEIR fails to mention or justify the amount of material export or import whatsoever. As a result, the amount of material export and import inputted into the model may be underestimated.

This potential underestimation presents an issue, as the inclusion of the entire amount of material export within the model is necessary to calculate emissions produced from material movement, including truck loading and unloading, and additional hauling truck trips.[11] As the Analysis fails to substantiate the amount of material import and export required for the Project, the model may underestimate the Project's construction-related emissions and should not be relied upon to determine Project significance. An EIR should be prepared to verify the amount of required material import and export.

Unsubstantiated Reductions to Solid Waste Generation Rates

Review of the CalEEMod output files demonstrates that the "Red Star Senior Housing v2" model includes manual reductions to the default solid waste generation rates (see excerpt below) (Attachment F, pp. 188).

Table Name	Column Name	Default Value	New Value
tblSolidWaste	SolidWasteGenerationRate	102.12	51.90
tblSolidWaste	SolidWasteGenerationRate	19.04	12.80

As you can see in the excerpt above, the solid waste generation rates are decreased by approximately 49% and 33%, respectively. As previously mentioned, the CalEEMod User's Guide requires any changes to model defaults be justified.[12] According to the corresponding User Entered Comments and Non-Default Data table, the justification provided for these changes is: "Solid waste generation rate reduced by 49 percent and 33 percent for residential and commercial land uses, specific to city of Oakland" (Attachment F, pp. 187). Furthermore, regarding impacts associated with the Project's anticipated solid waste generation, the Analysis states:

> "As described in the WOSP EIR, all development in the WOSP Area would be designed in accordance with State and local solid waste regulations and therefore impacts associated with solid waste would be less than significant" (p. 87).

However, these justifications are insufficient for two reasons.

First, the Analysis fails to provide a source substantiating the 49% and 33% solid waste generation rate reductions. As such, we cannot verify the revised solid waste generation rate values.

Second, even if the *City* has achieved a 49% and 33% solid waste diversion rate does not guarantee the same diversion rates will be achieved locally at the Project site. Without substantial justification or additional information regarding *how* the Project would achieve 49% and 33% solid waste diversion

[11] CalEEMod User's Guide, *available at:* http://www.caleemod.com/, p. 3, 26.
[12] CalEEMod User Guide, *available at:* http://www.caleemod.com/, p. 2, 9

rates, the proposed Project cannot claim that the *City-wide* solid waste diversion rates would result in the same diversion rates at the *project-level*.

These unsubstantiated reductions present an issue, as CalEEMod uses the solid waste generation rates to calculate the Project's operation GHG emissions associated with the disposal of solid waste into landfills.[13] Thus, by including unsubstantiated reductions to the default solid waste generation rates, the model may underestimate the Project's operational GHG emissions and should not be relied upon to determine Project significance.

Use of Underestimated Operational Vehicle Trip Rates

According to the TIR, the Project is estimated to generate 640 daily average vehicle trips (Attachment G, p. 3, Table 3). However, review of the CalEEMod output files demonstrates that the "Red Star Senior Housing v2" fails to include any operational vehicle trips whatsoever (see excerpt below) (Attachment F, pp. 208).

	Average Daily Trip Rate		
Land Use	Weekday	Saturday	Sunday
Apartments Mid Rise	0.00	0.00	0.00
Enclosed Parking with Elevator	0.00	0.00	0.00
High Turnover (Sit Down Restaurant)	0.00	0.00	0.00
Total	0.00	0.00	0.00

As you can see in the excerpt above, the average weekday, Saturday, and Sunday vehicle trip numbers are underestimated by 640 trips. As such, the trip rates inputted into the model are underestimated and inconsistent with the information provided in the TIR. By including underestimated operational vehicle trip rates, the model underestimates the Project's mobile-source operational emissions and should not be relied upon to determine Project significance.

Unsubstantiated Changes to Wastewater Treatment System Percentages

Review of the CalEEMod output files demonstrates that the "Red Star Senior Housing v2" model includes several changes to the default wastewater treatment system percentages (see excerpt below) (Attachment F, pp. 188-189).

[13] CalEEMod User Guide, *available at:* http://www.caleemod.com/, p. 46.

Table Name	Column Name	Default Value	New Value
tblWater	AerobicPercent	87.46	100.00
tblWater	AerobicPercent	87.46	100.00
tblWater	AerobicPercent	87.46	100.00
tblWater	AnaDigestCogenCombDigestGasPercent	0.00	100.00
tblWater	AnaDigestCogenCombDigestGasPercent	0.00	100.00
tblWater	AnaDigestCogenCombDigestGasPercent	0.00	100.00
tblWater	AnaDigestCombDigestGasPercent	100.00	0.00
tblWater	AnaDigestCombDigestGasPercent	100.00	0.00
tblWater	AnaDigestCombDigestGasPercent	100.00	0.00
tblWater	AnaerobicandFacultativeLagoonsPercent	2.21	0.00
tblWater	AnaerobicandFacultativeLagoonsPercent	2.21	0.00
tblWater	AnaerobicandFacultativeLagoonsPercent	2.21	0.00
tblWater	SepticTankPercent	10.33	0.00
tblWater	SepticTankPercent	10.33	0.00
tblWater	SepticTankPercent	10.33	0.00

As you can see in the excerpt above, the model assumes that the Project's wastewater would be treated 100% aerobically. As previously mentioned, the CalEEMod User's Guide requires any changes to model defaults be justified.[14] According to the "User Entered Comments and Non-Default Data" table, the justification provided for these changes is: "EBMUD would provide wastewater treatment for the site and have 100 percent aerobic process" (Attachment F, pp. 187). However, this justification is insufficient for two reasons.

First, the Analysis fails to provide a source or substantiate the claim that wastewater treatment would have an 100% aerobic process.

Second, review of the Analysis demonstrates that wastewater is treated at the East Bay Municipal Utility District ("EBMUD") Main Wastewater Treatment Plant ("WWTP") (p. 43). However, review of the Nexus Dialogue on Water Infrastructure Solutions demonstrates that the EBMUD WWTP utilizes *anaerobic* digestion as part of the wastewater treatment process.[15] As such, the model is incorrect in assuming that 100% of the Project's wastewater would be treated aerobically.

This presents an issue, as each type of wastewater treatment system is associated with different GHG emission factors, which are used by CalEEMod to calculate the Project's total GHG emissions.[16] Thus, by including unsubstantiated changes to the default wastewater treatment system percentages, the model may underestimate the Project's GHG emissions and should not be relied upon to determine Project significance.

[14] CalEEMod User Guide, *available at:* http://www.caleemod.com/, p. 2, 9
[15] "Nexus Dialogue on Water Infrastructure Solutions." International Water Association, *available at:* https://iwa-network.org/wp-content/uploads/2015/12/Case_20study_EBMUD.pdf, p. 2.
[16] CalEEMod User Guide, *available at:* http://www.caleemod.com/, p. 45.

2) Use of an Outdated Quantitative Threshold

As previously stated, the Analysis estimates that the Project would generate 0.58 MT CO_2e/SP/year, which would not exceed the BAAQMD threshold of 4.6 MT CO_2e/SP/year (p. 58, Table 5). However, the Analysis' use of the BAAQMD's 4.6 MT CO_2e/SP/year screening threshold is incorrect. This threshold was developed for the air district's planned reductions for 2020, based on AB 32, and thus, only apply to projects that will be operational by 2020.[17] As it is already March 2021, thresholds for 2020 are not applicable to the proposed Project. As such, we recommend that the Project utilize the widely-used 2030 "Substantial Progress" threshold of 660 MT CO_2e/year[18] and Association of Environmental Professionals' ("AEP") "2030 Land Use Efficiency Threshold" of 2.6 metric tons of carbon dioxide equivalents per service population per year ("MT CO_2e/SP/year").[19] In support of thresholds for the 2030 target, AEP guidance states:

> "Once the state has a full plan for 2030 (which is expected in 2017), and then *a project with a horizon between 2021 and 2030 should be evaluated based on a threshold using the 2030 target*. A more conservative approach would be to apply a 2030 threshold *based on SB 32* for any project with a horizon between 2021 and 2030 regardless of the status of the Scoping Plan Update" (emphasis added).[20]

As the California Air Resources Board ("CARB") adopted *California's 2017 Climate Change Scoping Plan* in November of 2017, the proposed Project "should be evaluated based on a threshold using the 2030 target," according to the relevant guidance referenced above. By failing to apply a current quantitative GHG threshold, the Analysis fails to adequately evaluate the Project's GHG emissions, and the less-than-significant impact conclusion should not be relied upon.

Air Quality

Failure to Evaluate Impacts

The Analysis fails to evaluate the Project's construction-related and operational criteria air pollutant emissions. As a result, the Project's air quality impacts are inadequately addressed. Until an updated

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[17] "California Environmental Quality Act Air Quality Guidelines." BAAQMD, May 2017, *available at:* http://www.baaqmd.gov/~/media/files/planning-and-research/ceqa/ceqa_guidelines_may2017-pdf.pdf?la=en, p. D-20 – D-22.

[18] See: "JEFFERSON UNION HIGH SCHOOL DISTRICT FACULTY & STAFF HOUSING PROJECT AIR QUALITY & GREENHOUSE GAS ASSESSMENT." City of Daly City, June 2019, *available at:* https://files.ceqanet.opr.ca.gov/257215-2/attachment/k-aC8VdC7LV3xz75yuUmtGiiExH-Y7HEPQ-dU-YIxuhNp95Dx9bK_TbVP3sWar00-Zx87dh7ji80vbRH0, p. 7; "TO 20-01 PAPÉ MACHINERY AIR QUALITY & GREENHOUSE GAS EMISSIONS ASSESSMENT." City of Fremont, February 2020, *available at: "*SOLAR4AMERICA ICE FACILITY EXPANSION AIR QUALITY AND GREENHOUSE GAS EMISSION ASSESSMENT." City of San Jose, September 2019, *available at*: https://www.fremont.gov/DocumentCenter/View/44974/4_Appendix-1_Air-Quality-GHG-Assessment, p. 18; and https://www.sanjoseca.gov/Home/ShowDocument?id=45200, p. 6.

[19] "Beyond Newhall and 2020: A Field Guide to New CEQA Greenhouse Gas Thresholds and Climate Action Plan Targets for California." Association of Environmental Professionals (AEP), October 2016, *available at:* https://califaep.org/docs/AEP-2016_Final_White_Paper.pdf, p. 40.

[20] "Beyond Newhall and 2020: A Field Guide to New CEQA Greenhouse Gas Thresholds and Climate Action Plan Targets for California." Association of Environmental Professionals (AEP), October 2016, *available at:* https://califaep.org/docs/AEP-2016_Final_White_Paper.pdf, p. 40.

analysis is prepared to estimate and compare the Project's emissions to the proper Bay Area Air Quality Management District ("BAAQMD") thresholds, the Project should not be approved.

Specifically, regarding the Project's construction-related criteria air pollutant emissions, the Analysis states:

> "[W]ith 222 units in a mid-rise apartment, the project is below the Bay Area Air Quality Management District (BAAQMD) screening threshold for criteria air pollutants construction emissions. The WOSP EIR found that an individual project consistent with the WOSP would be unlikely to result in a significant impact due to the generation of construction-related criteria air pollutants if the project did not exceed 240 units in a mid-rise apartment and implements the City's SCAs.23 Indicating that project construction would not generate significant criteria air contaminant emissions. With implementation of SCA-AIR-1, SCA-AIR-2, SCA-AIR-3, and SCA-AIR-4, the project construction related air impacts would be less-than-significant consistent with the findings of the WOSP EIR" (p. 43-44).

Furthermore, regarding the Project's operational criteria air pollutant emissions, the Analysis states:

> "The project includes 222 units in a mid-rise apartment, putting it below the BAAQMD's screening threshold for a significant impact for operational emissions of criteria air pollutants included in the WOSP EIR (Impact AIR-7). The WOSP EIR found that an individual project consistent with the WOSP would unlikely result in a significant impact due to the generation of operational-related criteria air pollutants if the project did not exceed 494 units in a mid-rise apartment or 540,000 square feet within a light industrial building" (p. 44c).

As the excerpts above demonstrate, the Analysis claims that the proposed Project is below the BAAQMD and West Oakland Specific Plan Environmental Impact Report ("WOSP EIR") screening levels, and thus, an evaluation of the Project's criteria pollutant emissions is not necessary. However, these justifications are insufficient for four reasons:

1) The Analysis incorrectly relies upon the BAAQMD screening thresholds;
2) The Analysis incorrectly relies upon the WOSP EIR;
3) SWAPE's screening level analysis indicates a potentially significant air quality impact; and
4) The Analysis improperly defers mitigation and fails to disclose impacts.

(1) Incorrect Reliance upon BAAQMD Screening Levels

As previously stated, the Analysis relies upon the BAAQMD screening levels to determine that the Project would result in less-than-significant criteria air pollutant emissions. However, this is incorrect. According to the BAAQMD's 2017 *CEQA Air Quality Guidelines:*

> "If the project meets the screening criteria in Table 3-1, the project would not result in the generation of operational-related criteria air pollutants and/or precursors that exceed the Thresholds of Significance shown in Table 2-2. Operation of the proposed project would

therefore result in a less-than-significant cumulative impact to air quality from criteria air pollutant and precursor emissions." [21]

As you can see in the excerpt above, the BAAQMD's criteria pollutant screening size only applies to operational emissions. As such, we can reasonably conclude that the proposed Project's construction-related emissions should have been considered by the Analysis. As a result, an updated air quality analysis, including an analysis of the Project's construction-related criteria air pollutant emissions, should be prepared in an EIR.

Furthermore, review of the Analysis' CalEEMod output files demonstrates that the proposed Project includes 1,600-SF of "High Turnover (Sit Down Restaurant)" in addition to the residential land use (Attachment F, pp. 186). As a result, the above-mentioned BAAQMD guidelines, which apply only to "Apartments, mid-rise," are not applicable to the proposed Project. Thus, the Analysis' air quality significance determination should not be relied upon. Until an analysis is prepared quantifying and comparing the Project's estimated emissions to the applicable BAAQMD thresholds, the proposed Project should not be approved.

(2) Incorrect Reliance Upon the WOSP EIR

As previously stated, the Analysis relies upon the WOSP EIR screening levels to determine that the Project would result in less-than-significant criteria air pollutant emissions. However, this is incorrect. According to the WOSP EIR:

> "*Without modeling each individual development project pursuant to the Specific Plan, it is not possible to assess whether its construction emissions would exceed the City threshold*. However, BAAQMD screening criteria indicates that if all of the following criteria are met, *an individual construction project would be unlikely to result in a significant impact* from criteria air pollutant and precursor emissions" (p. 4.2-39).

As demonstrated in the excerpt above, the WOSP EIR concludes that it is not possible to assess the significance of construction-related criteria air pollutant emissions without modeling each individual project, though it is unlikely that emissions would exceed if the screening criteria are met. Here, however, the proposed Project fails to conduct a project-specific analysis of emissions, stating:

> "With implementation of SCA-AIR-1, SCA-AIR-2, SCA-AIR-3, and SCA-AIR-4, the project construction related air impacts would be less-than-significant consistent with the findings of the WOSP EIR" (p. 44).

However, by failing to estimate and compare the Project's emissions to the applicable BAAQMD thresholds, the Analysis' conclusion that the Project's air quality impacts are consistent with the WOSP

[21] "California Environmental Quality Act Air Quality Guidelines." BAAQMD, May 2017, *available at:* BAAQMD CEQA Guidelines - May 2017, p. 2-6.

EIR and would be less-than-significant is unsupported. As a result, the Analysis' less-than-significant impact conclusion should not be relied upon.

(3) Screening Level Analysis Indicates Potentially Significant Air Quality Impact

In an effort to estimate the Project's construction-related and operational criteria air pollutant emissions, we prepared an updated CalEEMod model by revising the Analysis' CalEEMod model based on Project-specific information provided by the Analysis. In our updated model, we omitted the unsubstantiated changes to the energy use values, reductions to the solid waste generation rates, and changes to the wastewater treatment system percentages; and corrected the operational vehicle trip rates. Our updated analysis estimates that the Project's construction-related ROG and NO_X emissions exceed the 54 pounds per day ("lbs/day") thresholds set by the BAAQMD (see table below).[22]

[22] "California Environmental Quality Act Air Quality Guidelines." BAAQMD, May 2017, *available at:* BAAQMD CEQA Guidelines - May 2017, p. 2-6.

Model	ROG	NO_X
SWAPE Construction	280.4049	122.7616
BAAQMD Threshold (lbs/day)	**54**	**54**
Threshold Exceeded?	***Yes***	***Yes***

As demonstrated above, as estimated by SWAPE's updated CalEEMod model, the Project's construction-related ROG and NO_X emissions exceed the applicable BAAQMD thresholds. Thus, our model estimates that the Project would result in a potentially significant air quality impact that was not previously identified or addressed in the Analysis. As a result, an EIR should be prepared to adequately assess and mitigate the potential air quality and health risk impacts that the Project may have on the surrounding environment.

(4) Improper Deferral of Mitigation and Failure to Disclose Impacts

As discussed above, the Analysis concludes that the Project's criteria air pollutant emissions would be less-than-significant after the implementation of the City's Standard Condition's of Approval ("SCA(s)"), without making an effort to estimate the Project's emissions. Specifically, the Analysis includes SCA-AIR-2(g), which states the following:

> "The project applicant shall retain a qualified air quality consultant to identify criteria air pollutant reduction measures to reduce the project's average daily emissions below 54 pounds per day of ROG, NOx, or PM2.5 or 82 pounds per day of PM10. Quantified emissions and identified reduction measures shall be submitted to the City (and the Air District if specifically requested) for review and approval prior to the issuance of building permits and the approved criteria air pollutant reduction measures shall be implemented during construction" (p. A-7).

Thus, SCA-AIR-2(g) allows the Project to reduce emissions to less-than-significant levels after Project approval. However, this is deferred mitigation. According to CEQA Guidelines § 15126.4(a)(1)(B):

> "Formulation of mitigation measures shall not be deferred until some future time. The specific details of a mitigation measure, however, may be developed after project approval when it is impractical or infeasible to include those details during the project's environmental review provided that the agency (1) commits itself to the mitigation, (2) adopts specific performance standards the mitigation will achieve, and *(3) identifies the type(s) of potential action(s) that can feasibly achieve that performance standard and that will considered, analyzed, and potentially incorporated in the mitigation measure*. Compliance with a regulatory permit or other similar process may be identified as mitigation if compliance would result in implementation of measures that would be reasonably expected, based on substantial evidence in the record, to reduce the significant impact to the specified performance standards" (emphasis added).

Here, however, SCA-AIR-2 defers mitigation until a future time and fails to identify potential actions that could feasibility reduce the Project's construction-related criteria air pollutant emissions to less-than-significant levels. As a result, the Project's potential air quality impact impacts are currently unknown, undisclosed and, if significant, unmitigated. Thus, the Project should not be approved until an EIR is

prepared, incorporating an evaluation of the Project's potential criteria air pollutant emissions and identifying actions that would feasibly reduce the Project's construction-related criteria air pollutant emissions to less-than-significant levels.

Diesel Particulate Matter Health Risk Emissions Inadequately Evaluated

The WOSP EIR concludes that health risk impacts posed to future, on-site sensitive receptors as a result of exposure to diesel particulate matter ("DPM") would be less-than-significant, stating:

> "Compliance with SCA B would reduce each site's exposure to DPM through the installation of air filtration systems (with 85 percent filtration efficiency) or other equivalent measures to reduce indoor DPM to acceptable levels. Impacts related to DPM-borne TACs would be less than significant, since SCA policies are sufficient to reduce the risk to acceptable levels" (p. 4.2-50).

However, the Analysis concludes that health risk impacts posed to future, on-site sensitive receptors as a result of the Project's proximity to the I-880 would be significant and unavoidable (p. 44-45). Specifically, the Analysis states:

> "The project site is within 500 feet of I-880 and subject to emissions from the I-880 freeway that are indicated to result in a risk of contracting cancer. At 500 feet from the freeway, this risk is reduced to approximately 32 in one million, exceeding the threshold level of 10 in one million. Similarly, the site is subject to PM2.5 concentrations that exceed the threshold of 0.3 ug/m3. In addition, the project site is located approximately 380 feet from a stationary source. 25 The WOSP EIR identifies SCAs to minimize these impacts but recognizes that they cannot with certainty reduce risks to an acceptable level. While the site planning and filtration methods can capture/screen out airborne particulate matter and will reduce PM2.5 concentrations to lessthan- significant levels, these methods do not reduce risks from gaseous TACs. There are no known feasible technologies or site planning considerations that have been shown to reduce risks of gaseous TACs. Therefore, impacts related to gaseous TACs would be significant and unavoidable, since SCA requirements are not sufficient to reduce the risk to acceptable levels" (p. 44-45).

Furthermore, addressing the potential impacts associated with Project construction, the Analysis includes SCA-AIR-3, which states:

> "The project applicant shall implement appropriate measures during construction to reduce potential health risks to sensitive receptors due to exposure to diesel particulate matter (DPM) from construction emissions. The project applicant shall choose one of the following methods:
>
> i. The project applicant shall retain a qualified air quality consultant to prepare a Health Risk Assessment (HRA) in accordance with current guidance from the California Air Resources Board (CARB) and Office of Environmental Health and Hazard Assessment to determine the health risk to sensitive receptors exposed to DPM from project construction emissions. The HRA shall be submitted to the City (and the Air District if specifically requested) for review and approval. If the HRA concludes that the health risk

is at or below acceptable levels, then DPM reduction measures are not required. If the HRA concludes that the health risk exceeds acceptable levels, DPM reduction measures shall be identified to reduce the health risk to acceptable levels as set forth under subsection b below. Identified DPM reduction measures shall be submitted to the City for review and approval prior to the issuance of building permits and the approved DPM reduction measures shall be implemented during construction.

or

ii. All off-road diesel equipment shall be equipped with the most effective Verified Diesel Emission Control Strategies (VDECS) available for the engine type (Tier 4 engines automatically meet this requirement) as certified by CARB. The equipment shall be properly maintained and tuned in accordance with manufacturer specifications. This shall be verified through an equipment inventory submittal and Certification Statement that the Contractor agrees to compliance and acknowledges that a significant violation of this requirement shall constitute a material breach of contract" (p. A-7 – A-8).

As such, SCA-AIR-3 requires the Project to *either* prepare a health risk analysis ("HRA") *or* the implementation of the most effective Verified Diesel Emission Control Strategies ("VDECS"). Similarly, SCA-AIR-5 requires *either* the preparation of an HRA *or* the implementation of health risk reduction measures to address impacts associated with on-site stationary sources (p. A-11 – A-12). However, the Analysis' evaluation of the Project's potential health risk impacts, as well as the subsequent less-than-significant impact conclusion, is incorrect for five reasons.

First, the Analysis is inconsistent with SCA-AIR-4, which states:

> "The project applicant shall retain a qualified air quality consultant to prepare a Health Risk Assessment (HRA) in accordance with California Air Resources Board (CARB) and Office of Environmental Health and Hazard Assessment requirements to determine the health risk of exposure of project residents/occupants/users to air pollutants. The HRA shall be submitted to the City for review and approval. If the HRA concludes that the health risk is at or below acceptable levels, then health risk reduction measures are not required. *If the HRA concludes that the health risk exceeds acceptable levels, health risk reduction measures shall be identified to reduce the health risk to acceptable levels*. Identified risk reduction measures shall be submitted to the City for review and approval and be included on the project drawings submitted for the construction-related permit or on other documentation submitted to the City. The approved risk reduction measures shall be implemented during construction and/or operations as applicable" (p. A-9).

Here, while the Analysis identifies a cancer risk of approximately 32 in one million at 500 feet from the freeway, it fails to identify health risk reduction measures that would reduce the cancer risk to a less-than-significant level (p. 44). As a result, the Analysis is inconsistent with SCA-AIR-4 and the significant-and-unavoidable impact conclusion should not be relied upon. Furthermore, while we agree that the Project would result in significant health risk impacts, the Analysis' conclusion that these impacts are "significant and unavoidable" is incorrect. According to CEQA Guidelines § 15096(g)(2):

> "When an EIR has been prepared for a project, the Responsible Agency shall not approve the project as proposed if the agency finds any feasible alternative or feasible mitigation measures within its powers that would substantially lessen or avoid any significant effect the project would have on the environment."

As you can see, an impact can only be labeled as significant and unavoidable after *all available, feasible mitigation* is considered. However, the Analysis fails to implement *all feasible* mitigation, such as those included in SCA-AIR-4(ii) and suggested in the section of this letter titled "Feasible Mitigation Measures Available to Reduce Emissions." Therefore, the Analysis' conclusion that the Project's health risk impacts are significant and unavoidable is unsubstantiated. Thus, the Project should not be approved until an EIR is prepared, incorporating *all feasible* mitigation to reduce emissions to less-than-significant levels.

Second, SCA-AIR-3 and SCA-AIR-5 are examples of deferred mitigation measures. According to CEQA Guidelines § 15126.4(a)(1)(B):

> "Formulation of mitigation measures shall not be deferred until some future time. The specific details of a mitigation measure, however, may be developed after project approval when it is impractical or infeasible to include those details during the project's environmental review provided that the agency (1) commits itself to the mitigation, (2) adopts specific performance standards the mitigation will achieve, and *(3) identifies the type(s) of potential action(s) that can feasibly achieve that performance standard and that will considered, analyzed, and potentially incorporated in the mitigation measure*. Compliance with a regulatory permit or other similar process may be identified as mitigation if compliance would result in implementation of measures that would be reasonably expected, based on substantial evidence in the record, to reduce the significant impact to the specified performance standards" (emphasis added).

Here, however, SCA-AIR-3 and SCA-AIR-5 defer mitigation until a future time and fail to identify potential actions that could feasibility reduce the Project's toxic air contaminant ("TAC") emissions to less-than-significant levels. As a result, the Project's potential health risk impacts are currently unknown, undisclosed and, if significant, unmitigated. Thus, the Project should not be approved until an EIR is prepared, incorporating an evaluation of the Project's potential health risk impacts and identifying actions that would feasibly reduce the Project's TAC emissions to less-than-significant levels.

Third, while the Analysis discusses impacts posed to *future, on-site* sensitive receptors, it fails to address impacts posed to *nearby, existing* sensitive receptors as a result of Project operation. This is incorrect, as the Transportation and parking Demand Management Plan and Transportation Impact Review ("TIR"), provided as Attachment G to the Analysis, indicates that the proposed land uses are expected to generate approximately 640 average daily vehicle trips, which will generate additional exhaust emissions and continue to expose nearby sensitive receptors to DPM emissions (Attachment G, p. 3, Table 3). Furthermore, according to the Analysis, the closest sensitive receptors are located approximately 400 feet, or approximately 121 meters, from the Project site (p. 70). However, the Analysis fails to make a reasonable effort to connect the Project's operational TAC emissions to the potential health risks posed

to nearby receptors. As such, the Analysis is inconsistent with CEQA's requirement to correlate the increase in emissions generated by the Project with the potential adverse impacts on human health.

Fourth, by failing to prepare an operational HRA for the Project, the Analysis is inconsistent with the most recent guidance published by the Office of Environmental Health Hazard Assessment ("OEHHA"), the organization responsible for providing guidance on conducting HRAs in California. OEHHA released its most recent *Risk Assessment Guidelines: Guidance Manual for Preparation of Health Risk Assessments* in February 2015.[23] This guidance document describes the types of projects that warrant the preparation of an HRA. The OEHHA document recommends that exposure from projects lasting more than 6 months be evaluated for the duration of the project and recommends that an exposure duration of 30 years be used to estimate individual cancer risk for the maximally exposed individual resident ("MEIR").[24] Even though we were not provided with the expected lifetime of the Project, we can reasonably assume that the Project will operate for at least 30 years, if not more. Therefore, we recommend that health risk impacts from Project operation also be evaluated, as a 30-year exposure duration vastly exceeds the 6-month requirement set forth by OEHHA. These recommendations reflect the most recent state health risk policies, and as such, we recommend that an analysis of health risk impacts posed to nearby sensitive receptors from Project operation be included in an EIR for the Project.

Fifth, the Analysis' cancer risk estimate of 32 in one million should not be considered in isolation. Additional impacts related to *non-cancer health risks* have been documented for those people living near congested roadways. Key findings from a 2005 California Air Resources Board ("CARB") report[25] on health risk impacts from nearby freeways include:

- Reduced lung function in children was associated with traffic density, especially trucks, within 1,000 feet and the association was strongest within 300 feet.
- Increased asthma hospitalizations were associated with living within 650 feet of heavy traffic and heavy truck volume. (Lin, 2000)
- Asthma symptoms increased with proximity to roadways and the risk was greatest within 300 feet. (Venn, 2001)
- A San Diego study found increased medical visits in children living within 550 feet of heavy traffic. (English, 1999)

In 2018, the I-880, located directly adjacent to the Project, was ranked the 4th busiest freeway in California.[26] People housed by the proposed Project will be located directly west of the I-880. Therefore,

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[23] "Risk Assessment Guidelines Guidance Manual for Preparation of Health Risk Assessments." OEHHA, February 2015, *available at:* http://oehha.ca.gov/air/hot_spots/hotspots2015.html

[24] "Risk Assessment Guidelines Guidance Manual for Preparation of Health Risk Assessments." OEHHA, February 2015, *available at:* http://oehha.ca.gov/air/hot_spots/2015/2015GuidanceManual.pdf, p. 8-6, 8-15

[25] "Air Quality and Land Use Handbook: A Community Health Perspective." CARB, April 2005, *available at:* https://ww3.arb.ca.gov/ch/handbook.pdf.

[26] "Highway Statistics." California Highways, Last modified July 2020, *available at:* https://www.cahighways.org/stats3.html.

many of the Project's residents will be subjected to additional non-cancer health risks as a result of close proximity to the I-880. Regarding risks posed to people living nearby busy roadways, CARB concludes:

> "The combination of the children's health studies and the distance related findings suggests that it is important to avoid exposing children to elevated air pollution levels immediately downwind of freeways and high traffic roadways. These studies suggest a substantial benefit to a 500-foot separation."[27]

As a result, CARB recommends that projects:

> "[a]void siting new sensitive land uses within 500 feet of a freeway, urban roads with 100,000 vehicles/day, or rural roads with 50,000 vehicles/day."[28]

Despite this recommendation, the Analysis fails to mention or assess additional non-cancer, freeway-related health risks, including asthma. As such, an EIR should be prepared to include an assessment of *all* health risks, not only cancer, faced by residents at the Project site, especially to sensitive groups, such as newborns and the elderly. Furthermore, because of the Project's proximity to the I-880, all feasible mitigation should be considered in the EIR to reduce health impacts to people living at the project. Feasible mitigation, implemented at other Southern California projects adjacent to freeways include:

- Disclose to residents the potential health impacts from living in proximity to the I-880 freeway;
- Installation, use, and maintenance of filtration systems with at least a Minimum Efficiency Reporting Value (MERV) 15;
- Lead Agency verification and certification of the implementation the filtration systems;
- Lead Agency verification of maintenance to include manufacturer's recommended filter replacement schedule;
- Disclosure to residents that opening windows will reduce the health-protectiveness of the filter systems.

Screening-Level Analysis Demonstrates Significant Impacts

In an effort to demonstrate the potential health risk impacts posed by Project construction and operation to nearby, existing sensitive receptors utilizing site-specific emissions estimates, we prepared a screening-level HRA. The results of our assessment, as described below, demonstrate that the proposed Project may result in a significant impact not previously identified or addressed by the Analysis.

In order to conduct our screening-level risk assessment we relied upon AERSCREEN, which is a screening level air quality dispersion model.[29] The model replaced SCREEN3, and AERSCREEN is included in the

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[27] "Air Quality and Land Use Handbook: A Community Health Perspective." CARB, April 2005, *available at:* https://ww3.arb.ca.gov/ch/handbook.pdf, p. 10.
[28] "Air Quality and Land Use Handbook: A Community Health Perspective." CARB, April 2005, *available at:* https://ww3.arb.ca.gov/ch/handbook.pdf, p. 15.
[29] U.S. EPA (April 2011) AERSCREEN Released as the EPA Recommended Screening Model, http://www.epa.gov/ttn/scram/guidance/clarification/20110411_AERSCREEN_Release_Memo.pdf

OEHHA[30] and the California Air Pollution Control Officers Associated ("CAPCOA")[31] guidance as the appropriate air dispersion model for Level 2 health risk screening assessments ("HRSAs"). A Level 2 HRSA utilizes a limited amount of site-specific information to generate maximum reasonable downwind concentrations of air contaminants to which nearby sensitive receptors may be exposed. If an unacceptable air quality hazard is determined to be possible using AERSCREEN, a more refined modeling approach is required prior to approval of the Project.

We prepared a preliminary HRA of the Project's construction and operational health-related impact to residential sensitive receptors using the annual PM_{10} exhaust estimates from the Analysis' updated air model. Consistent with recommendations set forth by OEHHA, we assumed residential exposure begins during the third trimester stage of life. The Analysis' CalEEMod output files indicate that construction activities will generate approximately 188 pounds of DPM over the 343-day construction period. The AERSCREEN model relies on a continuous average emission rate to simulate maximum downward concentrations from point, area, and volume emission sources. To account for the variability in equipment usage and truck trips over Project construction, we calculated an average DPM emission rate by the following equation:

$$Emission\ Rate\ \left(\frac{grams}{second}\right) = \frac{187.95\ lbs}{343\ days} \times \frac{453.6\ grams}{lbs} \times \frac{1\ day}{24\ hours} \times \frac{1\ hour}{3{,}600\ seconds} = \mathbf{0.00287\ g/s}$$

Using this equation, we estimated a construction emission rate of 0.00287 grams per second ("g/s"). Subtracting the 343-day construction period from the total residential duration of 30 years, we assumed that after Project construction, the sensitive receptor would be exposed to the Project's operational DPM for an additional 29.06 years, approximately. The Analysis' CalEEMod output indicate that operational activities will generate approximately 51 pounds of DPM per year throughout operation. Applying the same equation used to estimate the construction DPM rate, we estimated the following emission rate for Project operation:

$$Emission\ Rate\ \left(\frac{grams}{second}\right) = \frac{50.8\ lbs}{365\ days} \times \frac{453.6\ grams}{lbs} \times \frac{1\ day}{24\ hours} \times \frac{1\ hour}{3{,}600\ seconds} = \mathbf{0.000731\ g/s}$$

Using this equation, we estimated an operational emission rate of 0.000731 g/s. Construction and operational activity was simulated as a 0.88-acre rectangular area source in AERSCREEN with dimensions of 105 by 34 meters. A release height of three meters was selected to represent the height of exhaust stacks on operational equipment and other heavy-duty vehicles, and an initial vertical dimension of one and a half meters was used to simulate instantaneous plume dispersion upon release. An urban meteorological setting was selected with model-default inputs for wind speed and direction distribution.

The AERSCREEN model generates maximum reasonable estimates of single-hour DPM concentrations from the Project site. EPA guidance suggests that in screening procedures, the annualized average

[30] OEHHA (February 2015) Risk Assessment Guidelines Guidance Manual for Preparation of Health Risk Assessments, https://oehha.ca.gov/media/downloads/crnr/2015guidancemanual.pdf.
[31] CAPCOA (July 2009) Health Risk Assessments for Proposed Land Use Projects, http://www.capcoa.org/wp-content/uploads/2012/03/CAPCOA_HRA_LU_Guidelines_8-6-09.pdf.

concentration of an air pollutant be estimated by multiplying the single-hour concentration by 10%.[32] As previously stated, according to the Analysis, the closest sensitive receptors are located approximately 400 feet, or approximately 121 meters, from the Project site (p. 70). Thus, the single-hour concentration estimated by AERSCREEN for Project construction is approximately 3.549 µg/m^3 DPM at approximately 125 meters downwind. Multiplying this single-hour concentration by 10%, we get an annualized average concentration of 0.3549 µg/m^3 for Project construction at the MEIR. For Project operation, the single-hour concentration estimated by AERSCREEN is 0.9015 µg/m^3 DPM at approximately 125 meters downwind. Multiplying this single-hour concentration by 10%, we get an annualized average concentration of 0.09015 µg/m^3 for Project operation at the MEIR.

We calculated the excess cancer risk to the MEIR using applicable HRA methodologies prescribed by OEHHA. Consistent with the construction schedule utilized in the Analysis' CalEEMod model, the annualized average concentration for construction was used for the entire third trimester of pregnancy (0.25 years) and the first 0.69 years of the infantile stage of life (0 – 2 years). The annualized averaged concentration for operation was used for the remainder of the 30-year exposure period, which makes up the remainder of the infantile stage of life, and the entire child and adult stages of life (2 – 16 years) and (16 – 30 years), respectively.

Consistent with OEHHA, as recommended by SCAQMD, BAAQMD, and SJVAPCD guidance, we used Age Sensitivity Factors ("ASF(s)") to account for the heightened susceptibility of young children to the carcinogenic toxicity of air pollution.[33, 34, 35, 36] According to this guidance, and consistent with the Checklist's methodology, the quantified cancer risk should be multiplied by a factor of ten during the third trimester of pregnancy and during the first two years of life (infant) as well as multiplied by a factor of three during the child stage of life (2 – 16 years). We also included the quantified cancer risk without adjusting for the heightened susceptibility of young children to the carcinogenic toxicity of air pollution in accordance with older OEHHA guidance from 2003. This guidance utilizes a less health protective scenario than what is currently recommended by BAAQMD, the air quality district with jurisdiction over

[32] "Screening Procedures for Estimating the Air Quality Impact of Stationary Sources Revised." EPA, 1992, *available at*: http://www.epa.gov/ttn/scram/guidance/guide/EPA-454R-92-019_OCR.pdf; *see also* "Risk Assessment Guidelines Guidance Manual for Preparation of Health Risk Assessments." OEHHA, February 2015, *available at:* https://oehha.ca.gov/media/downloads/crnr/2015guidancemanual.pdf p. 4-36.
[33] "Risk Assessment Guidelines Guidance Manual for Preparation of Health Risk Assessments." OEHHA, February 2015, *available at:* https://oehha.ca.gov/media/downloads/crnr/2015guidancemanual.pdf.
[34] "Draft Environmental Impact Report (DEIR) for the Proposed The Exchange (SCH No. 2018071058)." SCAQMD, March 2019, *available at:* http://www.aqmd.gov/docs/default-source/ceqa/comment-letters/2019/march/RVC190115-03.pdf?sfvrsn=8, p. 4.
[35] "California Environmental Quality Act Air Quality Guidelines." BAAQMD, May 2017, *available at:* http://www.baaqmd.gov/~/media/files/planning-and-research/ceqa/ceqa_guidelines_may2017-pdf.pdf?la=en, p. 56; see also "Recommended Methods for Screening and Modeling Local Risks and Hazards." BAAQMD, May 2011, *available at:* http://www.baaqmd.gov/~/media/Files/Planning%20and%20Research/CEQA/BAAQMD%20Modeling%20Approach.ashx, p. 65, 86.
[36] "Update to District's Risk Management Policy to Address OEHHA's Revised Risk Assessment Guidance Document." SJVAPCD, May 2015, *available at:* https://www.valleyair.org/busind/pto/staff-report-5-28-15.pdf, p. 8, 20, 24.

the City, and several other air districts in the state. Furthermore, in accordance with the guidance set forth by OEHHA, we used the 95th percentile breathing rates for infants.[37] Finally, according to BAAQMD guidance, we used a Fraction of Time At Home ("FAH") value of 0.85 for the 3rd trimester and infant receptors, 0.72 for child receptors, and 0.73 for the adult receptors.[38] We used a cancer potency factor of 1.1 (mg/kg-day)$^{-1}$ and an averaging time of 25,550 days. The results of our calculations are shown below.

The Closest Exposed Individual at an Existing Residential Receptor

Activity	Duration (years)	Concentration (ug/m3)	Breathing Rate (L/kg-day)	Cancer Risk without ASFs*	ASF	Cancer Risk with ASFs*
Construction	0.25	0.3549	361	4.1E-07	10	4.1E-06
3rd Trimester Duration	***0.25***			***4.1E-07***	***3rd Trimester Exposure***	***4.1E-06***
Construction	0.69	0.3549	1090	3.4E-06	10	3.4E-05
Operation	1.31	0.09015	1090	1.6E-06	10	1.6E-05
Infant Exposure Duration	***2.00***			***5.1E-06***	***Infant Exposure***	***5.1E-05***
Operation	14.00	0.09015	572	7.8E-06	3	2.3E-05
Child Exposure Duration	***14.00***			***7.8E-06***	***Child Exposure***	***2.3E-05***
Operation	14.00	0.09015	261	3.6E-06	1	3.6E-06
Adult Exposure Duration	***14.00***			***3.6E-06***	***Adult Exposure***	***3.6E-06***
Lifetime Exposure Duration	**30.00**			**1.7E-05**	**Lifetime Exposure**	**8.2E-05**

* We, along with CARB and BAAQMD, recommend using the more updated and health protective 2015 OEHHA guidance, which includes ASFs.

As demonstrated in the table above, the excess cancer risk to adults, children, infants, and during the 3rd trimester of pregnancy at the MEIR located approximately 125 meters away, over the course of Project construction and operation, with ASFs, are approximately 3.6, 23, 51, and 4.1 in one million, respectively. We estimate an excess cancer risk of approximately 82 in one million over the course of a residential lifetime (30 years), utilizing age sensitivity factors. The infant, child, and lifetime cancer risks exceed the BAAQMD threshold of 10 in one million, thus resulting in a potentially significant impact not

[37] "Supplemental Guidelines for Preparing Risk Assessments for the Air Toxics 'Hot Spots' Information and Assessment Act," June 5, 2015, *available at:* http://www.aqmd.gov/docs/default-source/planning/risk-assessment/ab2588-risk-assessment-guidelines.pdf?sfvrsn=6, p. 19.
"Risk Assessment Guidelines Guidance Manual for Preparation of Health Risk Assessments." OEHHA, February 2015, *available at:* https://oehha.ca.gov/media/downloads/crnr/2015guidancemanual.pdf

[38] "Air Toxics NSR Program Health Risk Assessment (HRA) Guidelines." BAAQMD, January 2016, *available at:* http://www.baaqmd.gov/~/media/files/planning-and-research/rules-and-regs/workshops/2016/reg-2-5/hra-guidelines_clean_jan_2016-pdf.pdf?la=en

previously addressed or identified by the Analysis. Utilizing ASFs is the most conservative, health-protective analysis according to the most recent guidance by OEHHA and reflects recommendations from the air district. Results without ASFs are presented in the table above, although we **do not** recommend utilizing these values for health risk analysis. Regardless, the excess cancer risk to adults, children, infants, and during the 3rd trimester of pregnancy at the MEIR located approximately 125 meters away, over the course of Project construction and operation, without ASFs, are approximately 3.6, 7.8, 5.1, and 0.41 in one million, respectively. The excess cancer risk over the course of a residential lifetime (30 years), without age sensitivity factors, is approximately 17 in one million. The lifetime cancer risk, without ASFs, exceed the BAAQMD threshold of 10 in one million, thus resulting in a potentially significant impact not previously addressed or identified by the Analysis. While we recommend the use of age sensitivity factors, health risk impacts exceed the BAAQMD threshold regardless.

An agency must include an analysis of health risks that connects the Project's air emissions with the health risk posed by those emissions. Our analysis represents a screening-level HRA, which is known to be conservative and tends to err on the side of health protection. [39] The purpose of the screening-level construction and operational HRA shown above is to demonstrate the link between the proposed Project's emissions and the potential health risk. Our screening-level HRA demonstrates that construction and operation of the Project could result in a potentially significant health risk impact, when correct exposure assumptions and up-to-date, applicable guidance are used. Therefore, since our screening-level HRA indicates a potentially significant impact, the City should prepare an EIR with an HRA which makes a reasonable effort to connect the Project's air quality emissions and the potential health risks posed to nearby receptors. Thus, the City should prepare an updated, quantified air pollution model as well as an updated, quantified refined HRA which adequately and accurately evaluates health risk impacts associated with both Project construction and operation.

Failure to Implement All Feasible Mitigation to Reduce Odor Impacts

The Analysis concludes that Project would result in a significant and unavoidable impact with respect to odor impacts posed to future, on-site sensitive receptors (p. 43). However, while we agree that the Project would result in significant odor impacts, the Analysis' conclusion that these impacts are "significant and unavoidable" is incorrect. According to CEQA Guidelines § 15096(g)(2):

> "When an EIR has been prepared for a project, the Responsible Agency shall not approve the project as proposed if the agency finds any feasible alternative or feasible mitigation measures within its powers that would substantially lessen or avoid any significant effect the project would have on the environment."

As you can see, an impact can only be labeled as significant and unavoidable after ***all available, feasible mitigation*** is considered. However, the Analysis fails to implement ***all feasible*** mitigation, such as

[39] "Risk Assessment Guidelines Guidance Manual for Preparation of Health Risk Assessments." OEHHA, February 2015, *available at:* https://oehha.ca.gov/media/downloads/crnr/2015guidancemanual.pdf, p. 1-5

providing an activated carbon air filter for each residential unit.[40] Therefore, the Analysis' conclusion that the Project's odor impacts are significant and unavoidable is unsubstantiated, and the Project should not be approved until an updated EIR is prepared, incorporating *all feasible* mitigation to reduce emissions to less-than-significant levels.

Feasible Mitigation Measures Available to Reduce Emissions

As previously discussed, the Project's would result in a significant health risk impact that should be mitigated further. In an effort to reduce the Project's emissions, we identified several mitigation measures that are applicable to the proposed Project. Feasible mitigation measures can be found in BAAQMD's *Community Risk Reduction Plans for Toxic Air Contaminants (TACs) and Fine Particulate Matter* ($PM_{2.5}$).[41] Therefore, to reduce the Project's emissions, consideration of the following measures should be made:

- Zoning to provide segregation from receptors;
- Establishment of zoning buffer zones, such as vegetated areas or wall barriers, around mobile sources;
- Operational hour limitations for truck deliveries;
- Alternative vehicle routing (i.e. re-route truck traffic by adding alternate access for truck traffic or by restricting truck traffic on certain sensitive routes);
- Truck parking restrictions (i.e. establish a buffer zone between truck parking and new housing or restrict truck parking in certain areas to specific hours of the day);
- Alternative mobile source fuel requirements;
- Improve road infrastructure to facilitate improved traffic flow without inducing capacity though:
    - Signal synchronization;
    - Locations of on- and off-ramps for freeways;
    - Assessment of speed limits and roadway capacities;
- Provide mechanisms for communication between carriers and operators at facilities such to manage demand and flow at facilities with heavy diesel traffic;
- Require the installation of electrical hookups at loading docks and the connection of trucks equipped with electrical hookups to eliminate the need to operate diesel-powered TRUs at the loading docks;
- Improve alternative transportation options such as biodiesel or CNG-powered buses, lightrail, community shuttles, etc.
- Require new development to incorporate:

[40] "California Environmental Quality Act Air Quality Guidelines." BAAQMD, May 2017, *available at:* https://www.baaqmd.gov/~/media/files/planning-and-research/ceqa/ceqa_guidelines_may2017-pdf.pdf?la=en, p. 7-4.

[41] "Community Risk Reduction Plans for Toxic Air Contaminants (TACs) and Fine Particulate Matter (PM2.5)." BAAQMD, May 2010, available at: https://www.baaqmd.gov/~/media/files/planning-and-research/ceqa/draft_community_risk_reduction_plan_guidelines_may_2010.pdf, p. 23-26.

- Bicycle parking, bicycle infrastructure (i.e. bike lanes and bike racks), and "end-of-trip" facilities;
- Pedestrian infrastructure (i.e. pedestrian network, minimize barriers, etc.);
- Traffic calming measures;
- Bus shelters on the perimeter of development;
- Parking measures (paid parking, shared parking among land uses, and preferential parking for alternative-fueled vehicles, etc.);
- Incentives for ridesharing and use of alternative-fueled vehicles (carpool lanes, electric-vehicle charging stations, car-share programs, etc.);
- Smart landscaping utilizing vegetation which requires minimal maintenance; and
- Electrical outlets at building exterior areas and complimentary electric lawnmowers for residents.

These measures offer a cost-effective, feasible way to incorporate lower-emitting design features into the proposed Project, which subsequently, reduce TAC emissions released during Project construction and operation. An EIR should be prepared to include all feasible mitigation measures, as well as include an updated health risk analysis to ensure that the necessary mitigation measures are implemented to reduce emissions to below thresholds. The EIR should also demonstrate a commitment to the implementation of these measures prior to Project approval, to ensure that the Project's significant emissions are reduced to the maximum extent possible.

Disclaimer

SWAPE has received limited discovery regarding this project. Additional information may become available in the future; thus, we retain the right to revise or amend this report when additional information becomes available. Our professional services have been performed using that degree of care and skill ordinarily exercised, under similar circumstances, by reputable environmental consultants practicing in this or similar localities at the time of service. No other warranty, expressed or implied, is made as to the scope of work, work methodologies and protocols, site conditions, analytical testing results, and findings presented. This report reflects efforts which were limited to information that was reasonably accessible at the time of the work, and may contain informational gaps, inconsistencies, or otherwise be incomplete due to the unavailability or uncertainty of information obtained or provided by third parties.

Sincerely,

Matt Hagemann, P.G., C.Hg.

Paul E. Rosenfeld, Ph.D.

Attachment A:	SWAPE Health Risk Calculations
Attachment B:	SWAPE Project CalEEMod Modeling
Attachment C:	SWAPE Project AERSCREEN Modeling
Attachment D:	Paul Rosenfeld CV
Attachment E:	Matt Hagemann CV

Attachment A

Construction					
2021			**Total**		
Annual Emissions (tons/year)	0.1		Total DPM (lbs)		187.9452055
Daily Emissions (lbs/day)	0.547945205		Total DPM (g)		85251.94521
Construction Duration (days)	343		Total Construction Days		343
Total DPM (lbs)	187.9452055		Emission Rate (g/s)		0.002876712
Total DPM (g)	85251.94521		Release Height (meters)		3
Start Date	1/1/2021		Initial Vertical Dimension (meters)		1.5
End Date	12/10/2021		Max Horizontal (meters)		105.0
Construction Days	343		Min Horizontal (meters)		34.0
			Total Acreage		0.882165432
			Setting	Urban	
			Population		425,097
			Total Years of Operation		29.06

Operation		
Emission Rate		
Annual Emissions (tons/year)		0.0254
Daily Emissions (lbs/day)		0.139178082
Emission Rate (g/s)		0.000730685
Release Height (meters)		3
Initial Vertical Dimension (meters)		1.5
Max Horizontal (meters)		105.0
Min Horizontal (meters)		34.0
Total Acreage		0.882165432
Setting	Urban	
Population		425,097
Total Pounds of DPM		
Total DPM (lbs)		50.8

The Closest Exposed Individual at an Existing Residential Receptor

Activity	Duration (years)	Concentration (ug/m3)	Breathing Rate (L/kg-day)	Cancer Risk without ASFs*	ASF	Cancer Risk with ASFs*
Construction	0.25	0.3549	361	4.1E-07	10	4.1E-06
3rd Trimester Duration	***0.25***			***4.1E-07***	***3rd Trimester Exposure***	***4.1E-06***
Construction	0.69	0.3549	1090	3.4E-06	10	3.4E-05
Operation	1.31	0.09015	1090	1.6E-06	10	1.6E-05
Infant Exposure Duration	***2.00***			***5.1E-06***	***Infant Exposure***	***5.1E-05***
Operation	14.00	0.09015	572	7.8E-06	3	2.3E-05
Child Exposure Duration	***14.00***			***7.8E-06***	***Child Exposure***	***2.3E-05***
Operation	14.00	0.09015	261	3.6E-06	1	3.6E-06
Adult Exposure Duration	***14.00***			***3.6E-06***	***Adult Exposure***	***3.6E-06***
Lifetime Exposure Duration	**30.00**			**1.7E-05**	**Lifetime Exposure**	**8.2E-05**

* We, along with CARB and BAAQMD, recommend using the more updated and health protective 2015 OEHHA guidance, which includes ASFs.

Red Star Senior Housing v2

Alameda County, Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Enclosed Parking with Elevator	44.00	Space	0.00	18,300.00	0
High Turnover (Sit Down Restaurant)	1.60	1000sqft	0.00	1,600.00	0
Apartments Mid Rise	222.00	Dwelling Unit	2.00	197,200.00	556

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	63
Climate Zone	5			**Operational Year**	2022
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	294	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Consistent with Analysis' model.

Land Use - Consistent with Analysis' model.

Off-road Equipment - Consistent with Analysis' model.

Grading - Consistent with Analysis' model.

Vehicle Trips - See SWAPE comment about operational vehicle trip rates.

Woodstoves - Consistent with Analysis' model.

Energy Use - See SWAPE comment about energy use values.

Water And Wastewater - See SWAPE comment about waste and wastewater values.

Solid Waste - See SWAPE comment about solid waste generation rates.

Water Mitigation - Consistent with Analysis' model.

Stationary Sources - Emergency Generators and Fire Pumps - Consistent with Analysis' model.

Stationary Sources - Emergency Generators and Fire Pumps EF - Consistent with Analysis' model.

Table Name	Column Name	Default Value	New Value
tblFireplaces	NumberGas	33.30	0.00
tblFireplaces	NumberNoFireplace	8.88	0.00
tblFireplaces	NumberWood	37.74	0.00
tblGrading	MaterialExported	0.00	3,000.00
tblGrading	MaterialImported	0.00	3,000.00
tblLandUse	LandUseSquareFeet	17,600.00	18,300.00
tblLandUse	LandUseSquareFeet	222,000.00	197,200.00
tblLandUse	LotAcreage	0.40	0.00
tblLandUse	LotAcreage	0.04	0.00
tblLandUse	LotAcreage	5.84	2.00
tblLandUse	Population	635.00	556.00
tblProjectCharacteristics	CO2IntensityFactor	641.35	294
tblStationaryGeneratorsPumpsEF	CH4_EF	0.07	0.07
tblStationaryGeneratorsPumpsUse	HorsePowerValue	0.00	1,341.00
tblStationaryGeneratorsPumpsUse	HoursPerYear	0.00	50.00
tblStationaryGeneratorsPumpsUse	NumberOfEquipment	0.00	1.00
tblVehicleTrips	ST_TR	6.39	2.88
tblVehicleTrips	ST_TR	158.37	0.00
tblVehicleTrips	SU_TR	5.86	2.88
tblVehicleTrips	SU_TR	131.84	0.00
tblVehicleTrips	WD_TR	6.65	2.88
tblVehicleTrips	WD_TR	127.15	0.00
tblWoodstoves	NumberCatalytic	4.44	0.00
tblWoodstoves	NumberNoncatalytic	4.44	0.00

2.0 Emissions Summary

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2021	1.7029	2.3514	2.1915	5.2500e-003	0.1752	0.1000	0.2751	0.0500	0.0953	0.1453	0.0000	460.1648	460.1648	0.0590	0.0000	461.6398
Maximum	**1.7029**	**2.3514**	**2.1915**	**5.2500e-003**	**0.1752**	**0.1000**	**0.2751**	**0.0500**	**0.0953**	**0.1453**	**0.0000**	**460.1648**	**460.1648**	**0.0590**	**0.0000**	**461.6398**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2021	1.7029	2.3514	2.1915	5.2500e-003	0.1752	0.1000	0.2751	0.0500	0.0953	0.1453	0.0000	460.1645	460.1645	0.0590	0.0000	461.6395
Maximum	**1.7029**	**2.3514**	**2.1915**	**5.2500e-003**	**0.1752**	**0.1000**	**0.2751**	**0.0500**	**0.0953**	**0.1453**	**0.0000**	**460.1645**	**460.1645**	**0.0590**	**0.0000**	**461.6395**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	1-1-2021	3-31-2021	0.8569	0.8569
2	4-1-2021	6-30-2021	0.7124	0.7124
3	7-1-2021	9-30-2021	0.7202	0.7202
		Highest	0.8569	0.8569

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.9675	0.0190	1.6506	9.0000e-005		9.1200e-003	9.1200e-003		9.1200e-003	9.1200e-003	0.0000	2.6934	2.6934	2.6000e-003	0.0000	2.7584
Energy	0.0119	0.1025	0.0491	6.5000e-004		8.2200e-003	8.2200e-003		8.2200e-003	8.2200e-003	0.0000	263.2413	263.2413	0.0166	5.1300e-003	265.1846
Mobile	0.1720	1.1633	1.8676	7.1500e-003	0.5523	6.7900e-003	0.5591	0.1485	6.3800e-003	0.1548	0.0000	659.4808	659.4808	0.0284	0.0000	660.1917
Stationary	0.0550	0.2460	0.1403	2.6000e-004		8.0900e-003	8.0900e-003		8.0900e-003	8.0900e-003	0.0000	25.5325	25.5325	3.4300e-003	0.0000	25.6181
Waste						0.0000	0.0000		0.0000	0.0000	24.5944	0.0000	24.5944	1.4535	0.0000	60.9316
Water						0.0000	0.0000		0.0000	0.0000	4.7429	15.0583	19.8012	0.4886	0.0118	35.5361
Total	**1.2064**	**1.5309**	**3.7075**	**8.1500e-003**	**0.5523**	**0.0322**	**0.5845**	**0.1485**	**0.0318**	**0.1803**	**29.3373**	**966.0063**	**995.3435**	**1.9932**	**0.0169**	**1,050.2205**

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	0.9675	0.0190	1.6506	9.0000e-005		9.1200e-003	9.1200e-003		9.1200e-003	9.1200e-003	0.0000	2.6934	2.6934	2.6000e-003	0.0000	2.7584
Energy	0.0119	0.1025	0.0491	6.5000e-004		8.2200e-003	8.2200e-003		8.2200e-003	8.2200e-003	0.0000	263.2413	263.2413	0.0166	5.1300e-003	265.1846
Mobile	0.1720	1.1633	1.8676	7.1500e-003	0.5523	6.7900e-003	0.5591	0.1485	6.3800e-003	0.1548	0.0000	659.4808	659.4808	0.0284	0.0000	660.1917
Stationary	0.0550	0.2460	0.1403	2.6000e-004		8.0900e-003	8.0900e-003		8.0900e-003	8.0900e-003	0.0000	25.5325	25.5325	3.4300e-003	0.0000	25.6181
Waste						0.0000	0.0000		0.0000	0.0000	24.5944	0.0000	24.5944	1.4535	0.0000	60.9316
Water						0.0000	0.0000		0.0000	0.0000	4.7429	15.0583	19.8012	0.4886	0.0118	35.5361
Total	**1.2064**	**1.5309**	**3.7075**	**8.1500e-003**	**0.5523**	**0.0322**	**0.5845**	**0.1485**	**0.0318**	**0.1803**	**29.3373**	**966.0063**	**995.3435**	**1.9932**	**0.0169**	**1,050.2205**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	1/1/2021	1/28/2021	5	20	
2	Site Preparation	Site Preparation	1/29/2021	2/1/2021	5	2	
3	Grading	Grading	2/2/2021	2/5/2021	5	4	
4	Building Construction	Building Construction	2/6/2021	11/12/2021	5	200	
5	Paving	Paving	11/13/2021	11/26/2021	5	10	
6	Architectural Coating	Architectural Coating	11/27/2021	12/10/2021	5	10	

Acres of Grading (Site Preparation Phase): 3

Acres of Grading (Grading Phase): 2

Acres of Paving: 0

Residential Indoor: 399,330; Residential Outdoor: 133,110; Non-Residential Indoor: 2,400; Non-Residential Outdoor: 800; Striped Parking Area: 1,098 (Architectural Coating – sqft)

OffRoad Equipment

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Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Rubber Tired Dozers	1	8.00	247	0.40
Demolition	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Site Preparation	Bore/Drill Rigs	1	8.00	221	0.50
Site Preparation	Graders	1	8.00	187	0.41
Site Preparation	Scrapers	1	8.00	367	0.48
Site Preparation	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Tractors/Loaders/Backhoes	2	7.00	97	0.37
Building Construction	Cranes	1	8.00	231	0.29
Building Construction	Forklifts	2	7.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	1	6.00	97	0.37
Building Construction	Welders	3	8.00	46	0.45
Paving	Cement and Mortar Mixers	1	8.00	9	0.56
Paving	Pavers	1	8.00	130	0.42
Paving	Paving Equipment	1	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Architectural Coating	Air Compressors	1	6.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	5	13.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	4	10.00	0.00	750.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	4	10.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	8	168.00	27.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	34.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Demolition - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0199	0.1970	0.1449	2.4000e-004		0.0104	0.0104		9.7100e-003	9.7100e-003	0.0000	21.0713	21.0713	5.3900e-003	0.0000	21.2060
Total	**0.0199**	**0.1970**	**0.1449**	**2.4000e-004**		**0.0104**	**0.0104**		**9.7100e-003**	**9.7100e-003**	**0.0000**	**21.0713**	**21.0713**	**5.3900e-003**	**0.0000**	**21.2060**

3.2 Demolition - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.2000e-004	3.0000e-004	3.1000e-003	1.0000e-005	1.0300e-003	1.0000e-005	1.0300e-003	2.7000e-004	1.0000e-005	2.8000e-004	0.0000	0.8820	0.8820	2.0000e-005	0.0000	0.8825
Total	**4.2000e-004**	**3.0000e-004**	**3.1000e-003**	**1.0000e-005**	**1.0300e-003**	**1.0000e-005**	**1.0300e-003**	**2.7000e-004**	**1.0000e-005**	**2.8000e-004**	**0.0000**	**0.8820**	**0.8820**	**2.0000e-005**	**0.0000**	**0.8825**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.0199	0.1970	0.1449	2.4000e-004		0.0104	0.0104		9.7100e-003	9.7100e-003	0.0000	21.0713	21.0713	5.3900e-003	0.0000	21.2060
Total	**0.0199**	**0.1970**	**0.1449**	**2.4000e-004**		**0.0104**	**0.0104**		**9.7100e-003**	**9.7100e-003**	**0.0000**	**21.0713**	**21.0713**	**5.3900e-003**	**0.0000**	**21.2060**

3.2 Demolition - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.2000e-004	3.0000e-004	3.1000e-003	1.0000e-005	1.0300e-003	1.0000e-005	1.0300e-003	2.7000e-004	1.0000e-005	2.8000e-004	0.0000	0.8820	0.8820	2.0000e-005	0.0000	0.8825
Total	**4.2000e-004**	**3.0000e-004**	**3.1000e-003**	**1.0000e-005**	**1.0300e-003**	**1.0000e-005**	**1.0300e-003**	**2.7000e-004**	**1.0000e-005**	**2.8000e-004**	**0.0000**	**0.8820**	**0.8820**	**2.0000e-005**	**0.0000**	**0.8825**

3.3 Site Preparation - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					1.9300e-003	0.0000	1.9300e-003	2.2000e-004	0.0000	2.2000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.8000e-003	0.0213	0.0128	3.0000e-005		7.9000e-004	7.9000e-004		7.3000e-004	7.3000e-004	0.0000	2.9801	2.9801	9.6000e-004	0.0000	3.0042
Total	**1.8000e-003**	**0.0213**	**0.0128**	**3.0000e-005**	**1.9300e-003**	**7.9000e-004**	**2.7200e-003**	**2.2000e-004**	**7.3000e-004**	**9.5000e-004**	**0.0000**	**2.9801**	**2.9801**	**9.6000e-004**	**0.0000**	**3.0042**

3.3 Site Preparation - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	3.0000e-003	0.1011	0.0188	2.9000e-004	6.3500e-003	3.1000e-004	6.6600e-003	1.7500e-003	3.0000e-004	2.0400e-003	0.0000	28.3516	28.3516	1.4100e-003	0.0000	28.3867
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.0000e-005	2.0000e-005	2.4000e-004	0.0000	8.0000e-005	0.0000	8.0000e-005	2.0000e-005	0.0000	2.0000e-005	0.0000	0.0679	0.0679	0.0000	0.0000	0.0679
Total	**3.0300e-003**	**0.1011**	**0.0190**	**2.9000e-004**	**6.4300e-003**	**3.1000e-004**	**6.7400e-003**	**1.7700e-003**	**3.0000e-004**	**2.0600e-003**	**0.0000**	**28.4194**	**28.4194**	**1.4100e-003**	**0.0000**	**28.4546**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					1.9300e-003	0.0000	1.9300e-003	2.2000e-004	0.0000	2.2000e-004	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.8000e-003	0.0213	0.0128	3.0000e-005		7.9000e-004	7.9000e-004		7.3000e-004	7.3000e-004	0.0000	2.9801	2.9801	9.6000e-004	0.0000	3.0041
Total	**1.8000e-003**	**0.0213**	**0.0128**	**3.0000e-005**	**1.9300e-003**	**7.9000e-004**	**2.7200e-003**	**2.2000e-004**	**7.3000e-004**	**9.5000e-004**	**0.0000**	**2.9801**	**2.9801**	**9.6000e-004**	**0.0000**	**3.0041**

3.3 Site Preparation - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	3.0000e-003	0.1011	0.0188	2.9000e-004	6.3500e-003	3.1000e-004	6.6600e-003	1.7500e-003	3.0000e-004	2.0400e-003	0.0000	28.3516	28.3516	1.4100e-003	0.0000	28.3867
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	3.0000e-005	2.0000e-005	2.4000e-004	0.0000	8.0000e-005	0.0000	8.0000e-005	2.0000e-005	0.0000	2.0000e-005	0.0000	0.0679	0.0679	0.0000	0.0000	0.0679
Total	**3.0300e-003**	**0.1011**	**0.0190**	**2.9000e-004**	**6.4300e-003**	**3.1000e-004**	**6.7400e-003**	**1.7700e-003**	**3.0000e-004**	**2.0600e-003**	**0.0000**	**28.4194**	**28.4194**	**1.4100e-003**	**0.0000**	**28.4546**

3.4 Grading - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0131	0.0000	0.0131	6.7300e-003	0.0000	6.7300e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	3.6500e-003	0.0404	0.0195	4.0000e-005		1.8300e-003	1.8300e-003		1.6800e-003	1.6800e-003	0.0000	3.6208	3.6208	1.1700e-003	0.0000	3.6501
Total	**3.6500e-003**	**0.0404**	**0.0195**	**4.0000e-005**	**0.0131**	**1.8300e-003**	**0.0149**	**6.7300e-003**	**1.6800e-003**	**8.4100e-003**	**0.0000**	**3.6208**	**3.6208**	**1.1700e-003**	**0.0000**	**3.6501**

3.4 Grading - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	6.0000e-005	5.0000e-005	4.8000e-004	0.0000	1.6000e-004	0.0000	1.6000e-004	4.0000e-005	0.0000	4.0000e-005	0.0000	0.1357	0.1357	0.0000	0.0000	0.1358
Total	**6.0000e-005**	**5.0000e-005**	**4.8000e-004**	**0.0000**	**1.6000e-004**	**0.0000**	**1.6000e-004**	**4.0000e-005**	**0.0000**	**4.0000e-005**	**0.0000**	**0.1357**	**0.1357**	**0.0000**	**0.0000**	**0.1358**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					0.0131	0.0000	0.0131	6.7300e-003	0.0000	6.7300e-003	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	3.6500e-003	0.0404	0.0195	4.0000e-005		1.8300e-003	1.8300e-003		1.6800e-003	1.6800e-003	0.0000	3.6208	3.6208	1.1700e-003	0.0000	3.6501
Total	**3.6500e-003**	**0.0404**	**0.0195**	**4.0000e-005**	**0.0131**	**1.8300e-003**	**0.0149**	**6.7300e-003**	**1.6800e-003**	**8.4100e-003**	**0.0000**	**3.6208**	**3.6208**	**1.1700e-003**	**0.0000**	**3.6501**

3.4 Grading - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	6.0000e-005	5.0000e-005	4.8000e-004	0.0000	1.6000e-004	0.0000	1.6000e-004	4.0000e-005	0.0000	4.0000e-005	0.0000	0.1357	0.1357	0.0000	0.0000	0.1358
Total	**6.0000e-005**	**5.0000e-005**	**4.8000e-004**	**0.0000**	**1.6000e-004**	**0.0000**	**1.6000e-004**	**4.0000e-005**	**0.0000**	**4.0000e-005**	**0.0000**	**0.1357**	**0.1357**	**0.0000**	**0.0000**	**0.1358**

3.5 Building Construction - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.2045	1.6028	1.4563	2.5000e-003		0.0817	0.0817		0.0783	0.0783	0.0000	207.6487	207.6487	0.0409	0.0000	208.6701
Total	**0.2045**	**1.6028**	**1.4563**	**2.5000e-003**		**0.0817**	**0.0817**		**0.0783**	**0.0783**	**0.0000**	**207.6487**	**207.6487**	**0.0409**	**0.0000**	**208.6701**

3.5 Building Construction - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	8.3600e-003	0.2888	0.0612	7.4000e-004	0.0177	6.0000e-004	0.0183	5.1300e-003	5.8000e-004	5.7100e-003	0.0000	70.7321	70.7321	3.8800e-003	0.0000	70.8292
Worker	0.0537	0.0382	0.4004	1.2600e-003	0.1328	8.9000e-004	0.1337	0.0353	8.2000e-004	0.0362	0.0000	113.9834	113.9834	2.7200e-003	0.0000	114.0515
Total	**0.0620**	**0.3270**	**0.4616**	**2.0000e-003**	**0.1506**	**1.4900e-003**	**0.1521**	**0.0405**	**1.4000e-003**	**0.0419**	**0.0000**	**184.7155**	**184.7155**	**6.6000e-003**	**0.0000**	**184.8807**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	0.2045	1.6028	1.4563	2.5000e-003		0.0817	0.0817		0.0783	0.0783	0.0000	207.6485	207.6485	0.0409	0.0000	208.6698
Total	**0.2045**	**1.6028**	**1.4563**	**2.5000e-003**		**0.0817**	**0.0817**		**0.0783**	**0.0783**	**0.0000**	**207.6485**	**207.6485**	**0.0409**	**0.0000**	**208.6698**

3.5 Building Construction - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	8.3600e-003	0.2888	0.0612	7.4000e-004	0.0177	6.0000e-004	0.0183	5.1300e-003	5.8000e-004	5.7100e-003	0.0000	70.7321	70.7321	3.8800e-003	0.0000	70.8292
Worker	0.0537	0.0382	0.4004	1.2600e-003	0.1328	8.9000e-004	0.1337	0.0353	8.2000e-004	0.0362	0.0000	113.9834	113.9834	2.7200e-003	0.0000	114.0515
Total	**0.0620**	**0.3270**	**0.4616**	**2.0000e-003**	**0.1506**	**1.4900e-003**	**0.1521**	**0.0405**	**1.4000e-003**	**0.0419**	**0.0000**	**184.7155**	**184.7155**	**6.6000e-003**	**0.0000**	**184.8807**

3.6 Paving - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	5.3200e-003	0.0532	0.0589	9.0000e-005		2.9100e-003	2.9100e-003		2.6900e-003	2.6900e-003	0.0000	7.7524	7.7524	2.4600e-003	0.0000	7.8138
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**5.3200e-003**	**0.0532**	**0.0589**	**9.0000e-005**		**2.9100e-003**	**2.9100e-003**		**2.6900e-003**	**2.6900e-003**	**0.0000**	**7.7524**	**7.7524**	**2.4600e-003**	**0.0000**	**7.8138**

3.6 Paving - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.4000e-004	1.7000e-004	1.7900e-003	1.0000e-005	5.9000e-004	0.0000	6.0000e-004	1.6000e-004	0.0000	1.6000e-004	0.0000	0.5089	0.5089	1.0000e-005	0.0000	0.5092
Total	**2.4000e-004**	**1.7000e-004**	**1.7900e-003**	**1.0000e-005**	**5.9000e-004**	**0.0000**	**6.0000e-004**	**1.6000e-004**	**0.0000**	**1.6000e-004**	**0.0000**	**0.5089**	**0.5089**	**1.0000e-005**	**0.0000**	**0.5092**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Off-Road	5.3200e-003	0.0532	0.0589	9.0000e-005		2.9100e-003	2.9100e-003		2.6900e-003	2.6900e-003	0.0000	7.7524	7.7524	2.4600e-003	0.0000	7.8138
Paving	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**5.3200e-003**	**0.0532**	**0.0589**	**9.0000e-005**		**2.9100e-003**	**2.9100e-003**		**2.6900e-003**	**2.6900e-003**	**0.0000**	**7.7524**	**7.7524**	**2.4600e-003**	**0.0000**	**7.8138**

3.6 Paving - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	2.4000e-004	1.7000e-004	1.7900e-003	1.0000e-005	5.9000e-004	0.0000	6.0000e-004	1.6000e-004	0.0000	1.6000e-004	0.0000	0.5089	0.5089	1.0000e-005	0.0000	0.5092
Total	**2.4000e-004**	**1.7000e-004**	**1.7900e-003**	**1.0000e-005**	**5.9000e-004**	**0.0000**	**6.0000e-004**	**1.6000e-004**	**0.0000**	**1.6000e-004**	**0.0000**	**0.5089**	**0.5089**	**1.0000e-005**	**0.0000**	**0.5092**

3.7 Architectural Coating - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	1.4003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.0900e-003	7.6300e-003	9.0900e-003	1.0000e-005		4.7000e-004	4.7000e-004		4.7000e-004	4.7000e-004	0.0000	1.2766	1.2766	9.0000e-005	0.0000	1.2788
Total	**1.4014**	**7.6300e-003**	**9.0900e-003**	**1.0000e-005**		**4.7000e-004**	**4.7000e-004**		**4.7000e-004**	**4.7000e-004**	**0.0000**	**1.2766**	**1.2766**	**9.0000e-005**	**0.0000**	**1.2788**

3.7 Architectural Coating - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.4000e-004	3.9000e-004	4.0500e-003	1.0000e-005	1.3400e-003	1.0000e-005	1.3500e-003	3.6000e-004	1.0000e-005	3.7000e-004	0.0000	1.1534	1.1534	3.0000e-005	0.0000	1.1541
Total	**5.4000e-004**	**3.9000e-004**	**4.0500e-003**	**1.0000e-005**	**1.3400e-003**	**1.0000e-005**	**1.3500e-003**	**3.6000e-004**	**1.0000e-005**	**3.7000e-004**	**0.0000**	**1.1534**	**1.1534**	**3.0000e-005**	**0.0000**	**1.1541**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Archit. Coating	1.4003					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.0900e-003	7.6300e-003	9.0900e-003	1.0000e-005		4.7000e-004	4.7000e-004		4.7000e-004	4.7000e-004	0.0000	1.2766	1.2766	9.0000e-005	0.0000	1.2788
Total	**1.4014**	**7.6300e-003**	**9.0900e-003**	**1.0000e-005**		**4.7000e-004**	**4.7000e-004**		**4.7000e-004**	**4.7000e-004**	**0.0000**	**1.2766**	**1.2766**	**9.0000e-005**	**0.0000**	**1.2788**

3.7 Architectural Coating - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	5.4000e-004	3.9000e-004	4.0500e-003	1.0000e-005	1.3400e-003	1.0000e-005	1.3500e-003	3.6000e-004	1.0000e-005	3.7000e-004	0.0000	1.1534	1.1534	3.0000e-005	0.0000	1.1541
Total	**5.4000e-004**	**3.9000e-004**	**4.0500e-003**	**1.0000e-005**	**1.3400e-003**	**1.0000e-005**	**1.3500e-003**	**3.6000e-004**	**1.0000e-005**	**3.7000e-004**	**0.0000**	**1.1534**	**1.1534**	**3.0000e-005**	**0.0000**	**1.1541**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.1720	1.1633	1.8676	7.1500e-003	0.5523	6.7900e-003	0.5591	0.1485	6.3800e-003	0.1548	0.0000	659.4808	659.4808	0.0284	0.0000	660.1917
Unmitigated	0.1720	1.1633	1.8676	7.1500e-003	0.5523	6.7900e-003	0.5591	0.1485	6.3800e-003	0.1548	0.0000	659.4808	659.4808	0.0284	0.0000	660.1917

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Mid Rise	639.36	639.36	639.36	1,476,671	1,476,671
Enclosed Parking with Elevator	0.00	0.00	0.00		
High Turnover (Sit Down Restaurant)	0.00	0.00	0.00		
Total	639.36	639.36	639.36	1,476,671	1,476,671

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Apartments Mid Rise	10.80	4.80	5.70	31.00	15.00	54.00	86	11	3
Enclosed Parking with Elevator	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0
High Turnover (Sit Down	9.50	7.30	7.30	8.50	72.50	19.00	37	20	43

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Apartments Mid Rise	0.560371	0.039285	0.190378	0.108244	0.016023	0.005202	0.023981	0.045200	0.002184	0.002561	0.005524	0.000326	0.000721
Enclosed Parking with Elevator	0.560371	0.039285	0.190378	0.108244	0.016023	0.005202	0.023981	0.045200	0.002184	0.002561	0.005524	0.000326	0.000721
High Turnover (Sit Down Restaurant)	0.560371	0.039285	0.190378	0.108244	0.016023	0.005202	0.023981	0.045200	0.002184	0.002561	0.005524	0.000326	0.000721

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	145.4766	145.4766	0.0144	2.9700e-003	146.7201
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	145.4766	145.4766	0.0144	2.9700e-003	146.7201
NaturalGas Mitigated	0.0119	0.1025	0.0491	6.5000e-004		8.2200e-003	8.2200e-003		8.2200e-003	8.2200e-003	0.0000	117.7647	117.7647	2.2600e-003	2.1600e-003	118.4645
NaturalGas Unmitigated	0.0119	0.1025	0.0491	6.5000e-004		8.2200e-003	8.2200e-003		8.2200e-003	8.2200e-003	0.0000	117.7647	117.7647	2.2600e-003	2.1600e-003	118.4645

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Apartments Mid Rise	1.93816e+006	0.0105	0.0893	0.0380	5.7000e-004		7.2200e-003	7.2200e-003		7.2200e-003	7.2200e-003	0.0000	103.4274	103.4274	1.9800e-003	1.9000e-003	104.0420
Enclosed Parking with Elevator	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
High Turnover (Sit Down Restaurant)	268672	1.4500e-003	0.0132	0.0111	8.0000e-005		1.0000e-003	1.0000e-003		1.0000e-003	1.0000e-003	0.0000	14.3374	14.3374	2.7000e-004	2.6000e-004	14.4226
Total		**0.0119**	**0.1025**	**0.0491**	**6.5000e-004**		**8.2200e-003**	**8.2200e-003**		**8.2200e-003**	**8.2200e-003**	**0.0000**	**117.7647**	**117.7647**	**2.2500e-003**	**2.1600e-003**	**118.4645**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
Apartments Mid Rise	1.93816e+006	0.0105	0.0893	0.0380	5.7000e-004		7.2200e-003	7.2200e-003		7.2200e-003	7.2200e-003	0.0000	103.4274	103.4274	1.9800e-003	1.9000e-003	104.0420
Enclosed Parking with Elevator	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
High Turnover (Sit Down Restaurant)	268672	1.4500e-003	0.0132	0.0111	8.0000e-005		1.0000e-003	1.0000e-003		1.0000e-003	1.0000e-003	0.0000	14.3374	14.3374	2.7000e-004	2.6000e-004	14.4226
Total		**0.0119**	**0.1025**	**0.0491**	**6.5000e-004**		**8.2200e-003**	**8.2200e-003**		**8.2200e-003**	**8.2200e-003**	**0.0000**	**117.7647**	**117.7647**	**2.2500e-003**	**2.1600e-003**	**118.4645**

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments Mid Rise	937282	124.9923	0.0123	2.5500e-003	126.0607
Enclosed Parking with Elevator	107238	14.3009	1.4100e-003	2.9000e-004	14.4231
High Turnover (Sit Down Restaurant)	46368	6.1835	6.1000e-004	1.3000e-004	6.2363
Total		**145.4766**	**0.0144**	**2.9700e-003**	**146.7201**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
Apartments Mid Rise	937282	124.9923	0.0123	2.5500e-003	126.0607
Enclosed Parking with Elevator	107238	14.3009	1.4100e-003	2.9000e-004	14.4231
High Turnover (Sit Down Restaurant)	46368	6.1835	6.1000e-004	1.3000e-004	6.2363
Total		**145.4766**	**0.0144**	**2.9700e-003**	**146.7201**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.9675	0.0190	1.6506	9.0000e-005		9.1200e-003	9.1200e-003		9.1200e-003	9.1200e-003	0.0000	2.6934	2.6934	2.6000e-003	0.0000	2.7584
Unmitigated	0.9675	0.0190	1.6506	9.0000e-005		9.1200e-003	9.1200e-003		9.1200e-003	9.1200e-003	0.0000	2.6934	2.6934	2.6000e-003	0.0000	2.7584

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.1400					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.7776					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0499	0.0190	1.6506	9.0000e-005		9.1200e-003	9.1200e-003		9.1200e-003	9.1200e-003	0.0000	2.6934	2.6934	2.6000e-003	0.0000	2.7584
Total	**0.9675**	**0.0190**	**1.6506**	**9.0000e-005**		**9.1200e-003**	**9.1200e-003**		**9.1200e-003**	**9.1200e-003**	**0.0000**	**2.6934**	**2.6934**	**2.6000e-003**	**0.0000**	**2.7584**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.1400					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.7776					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.0499	0.0190	1.6506	9.0000e-005		9.1200e-003	9.1200e-003		9.1200e-003	9.1200e-003	0.0000	2.6934	2.6934	2.6000e-003	0.0000	2.7584
Total	**0.9675**	**0.0190**	**1.6506**	**9.0000e-005**		**9.1200e-003**	**9.1200e-003**		**9.1200e-003**	**9.1200e-003**	**0.0000**	**2.6934**	**2.6934**	**2.6000e-003**	**0.0000**	**2.7584**

7.0 Water Detail

7.1 Mitigation Measures Water

Apply Water Conservation Strategy

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	19.8012	0.4886	0.0118	35.5361
Unmitigated	19.8012	0.4886	0.0118	35.5361

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments Mid Rise	14.4642 / 9.11873	19.2822	0.4728	0.0114	34.5071
Enclosed Parking with Elevator	0 / 0	0.0000	0.0000	0.0000	0.0000
High Turnover (Sit Down Restaurant)	0.485654 / 0.0309992	0.5190	0.0159	3.8000e-004	1.0291
Total		**19.8012**	**0.4886**	**0.0118**	**35.5361**

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
Apartments Mid Rise	14.4642 / 9.11873	19.2822	0.4728	0.0114	34.5071
Enclosed Parking with Elevator	0 / 0	0.0000	0.0000	0.0000	0.0000
High Turnover (Sit Down Restaurant)	0.485654 / 0.0309992	0.5190	0.0159	3.8000e-004	1.0291
Total		**19.8012**	**0.4886**	**0.0118**	**35.5361**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	24.5944	1.4535	0.0000	60.9316
Unmitigated	24.5944	1.4535	0.0000	60.9316

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments Mid Rise	102.12	20.7294	1.2251	0.0000	51.3563
Enclosed Parking with Elevator	0	0.0000	0.0000	0.0000	0.0000
High Turnover (Sit Down Restaurant)	19.04	3.8650	0.2284	0.0000	9.5752
Total		**24.5944**	**1.4535**	**0.0000**	**60.9315**

8.2 Waste by Land Use

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
Apartments Mid Rise	102.12	20.7294	1.2251	0.0000	51.3563
Enclosed Parking with Elevator	0	0.0000	0.0000	0.0000	0.0000
High Turnover (Sit Down Restaurant)	19.04	3.8650	0.2284	0.0000	9.5752
Total		**24.5944**	**1.4535**	**0.0000**	**60.9315**

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type
Emergency Generator	1	0	50	1341	0.73	Diesel

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

10.1 Stationary Sources

Unmitigated/Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Equipment Type	tons/yr										MT/yr					
Emergency Generator - Diesel (750 - 9999 HP)	0.0550	0.2460	0.1403	2.6000e-004		8.0900e-003	8.0900e-003		8.0900e-003	8.0900e-003	0.0000	25.5325	25.5325	3.4300e-003	0.0000	25.6181
Total	**0.0550**	**0.2460**	**0.1403**	**2.6000e-004**		**8.0900e-003**	**8.0900e-003**		**8.0900e-003**	**8.0900e-003**	**0.0000**	**25.5325**	**25.5325**	**3.4300e-003**	**0.0000**	**25.6181**

11.0 Vegetation

Red Star Senior Housing v2

Alameda County, Summer

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Enclosed Parking with Elevator	44.00	Space	0.00	18,300.00	0
High Turnover (Sit Down Restaurant)	1.60	1000sqft	0.00	1,600.00	0
Apartments Mid Rise	222.00	Dwelling Unit	2.00	197,200.00	556

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	63
Climate Zone	5			**Operational Year**	2022
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	294	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Consistent with Analysis' model.

Land Use - Consistent with Analysis' model.

Off-road Equipment - Consistent with Analysis' model.

Grading - Consistent with Analysis' model.

Vehicle Trips - See SWAPE comment about operational vehicle trip rates.

Woodstoves - Consistent with Analysis' model.

Energy Use - See SWAPE comment about energy use values.

Water And Wastewater - See SWAPE comment about waste and wastewater values.

Solid Waste - See SWAPE comment about solid waste generation rates.

Water Mitigation - Consistent with Analysis' model.

Stationary Sources - Emergency Generators and Fire Pumps - Consistent with Analysis' model.

Stationary Sources - Emergency Generators and Fire Pumps EF - Consistent with Analysis' model.

Table Name	Column Name	Default Value	New Value
tblFireplaces	NumberGas	33.30	0.00
tblFireplaces	NumberNoFireplace	8.88	0.00
tblFireplaces	NumberWood	37.74	0.00
tblGrading	MaterialExported	0.00	3,000.00
tblGrading	MaterialImported	0.00	3,000.00
tblLandUse	LandUseSquareFeet	17,600.00	18,300.00
tblLandUse	LandUseSquareFeet	222,000.00	197,200.00
tblLandUse	LotAcreage	0.40	0.00
tblLandUse	LotAcreage	0.04	0.00
tblLandUse	LotAcreage	5.84	2.00
tblLandUse	Population	635.00	556.00
tblProjectCharacteristics	CO2IntensityFactor	641.35	294
tblStationaryGeneratorsPumpsEF	CH4_EF	0.07	0.07
tblStationaryGeneratorsPumpsUse	HorsePowerValue	0.00	1,341.00
tblStationaryGeneratorsPumpsUse	HoursPerYear	0.00	50.00
tblStationaryGeneratorsPumpsUse	NumberOfEquipment	0.00	1.00
tblVehicleTrips	ST_TR	6.39	2.88
tblVehicleTrips	ST_TR	158.37	0.00
tblVehicleTrips	SU_TR	5.86	2.88
tblVehicleTrips	SU_TR	131.84	0.00
tblVehicleTrips	WD_TR	6.65	2.88
tblVehicleTrips	WD_TR	127.15	0.00
tblWoodstoves	NumberCatalytic	4.44	0.00
tblWoodstoves	NumberNoncatalytic	4.44	0.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2021	280.3999	120.5390	31.1904	0.3310	8.5775	1.1010	9.6785	3.3893	1.0242	4.2323	0.0000	34,862.8213	34,862.8213	2.5662	0.0000	34,926.9765
Maximum	**280.3999**	**120.5390**	**31.1904**	**0.3310**	**8.5775**	**1.1010**	**9.6785**	**3.3893**	**1.0242**	**4.2323**	**0.0000**	**34,862.8213**	**34,862.8213**	**2.5662**	**0.0000**	**34,926.9765**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2021	280.3999	120.5390	31.1904	0.3310	8.5775	1.1010	9.6785	3.3893	1.0242	4.2323	0.0000	34,862.8213	34,862.8213	2.5662	0.0000	34,926.9765
Maximum	**280.3999**	**120.5390**	**31.1904**	**0.3310**	**8.5775**	**1.1010**	**9.6785**	**3.3893**	**1.0242**	**4.2323**	**0.0000**	**34,862.8213**	**34,862.8213**	**2.5662**	**0.0000**	**34,926.9765**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	5.5823	0.2115	18.3397	9.7000e-004		0.1013	0.1013		0.1013	0.1013	0.0000	32.9886	32.9886	0.0318	0.0000	33.7847
Energy	0.0652	0.5615	0.2689	3.5600e-003		0.0451	0.0451		0.0451	0.0451		711.3062	711.3062	0.0136	0.0130	715.5331
Mobile	1.0836	6.2480	10.6023	0.0415	3.1504	0.0372	3.1876	0.8441	0.0350	0.8791		4,213.6145	4,213.6145	0.1709		4,217.8858
Stationary	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**6.7311**	**7.0211**	**29.2108**	**0.0460**	**3.1504**	**0.1836**	**3.3340**	**0.8441**	**0.1814**	**1.0254**	**0.0000**	**4,957.9093**	**4,957.9093**	**0.2163**	**0.0130**	**4,967.2036**

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	5.5823	0.2115	18.3397	9.7000e-004		0.1013	0.1013		0.1013	0.1013	0.0000	32.9886	32.9886	0.0318	0.0000	33.7847
Energy	0.0652	0.5615	0.2689	3.5600e-003		0.0451	0.0451		0.0451	0.0451		711.3062	711.3062	0.0136	0.0130	715.5331
Mobile	1.0836	6.2480	10.6023	0.0415	3.1504	0.0372	3.1876	0.8441	0.0350	0.8791		4,213.6145	4,213.6145	0.1709		4,217.8858
Stationary	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**6.7311**	**7.0211**	**29.2108**	**0.0460**	**3.1504**	**0.1836**	**3.3340**	**0.8441**	**0.1814**	**1.0254**	**0.0000**	**4,957.9093**	**4,957.9093**	**0.2163**	**0.0130**	**4,967.2036**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	1/1/2021	1/28/2021	5	20	
2	Site Preparation	Site Preparation	1/29/2021	2/1/2021	5	2	
3	Grading	Grading	2/2/2021	2/5/2021	5	4	
4	Building Construction	Building Construction	2/6/2021	11/12/2021	5	200	
5	Paving	Paving	11/13/2021	11/26/2021	5	10	
6	Architectural Coating	Architectural Coating	11/27/2021	12/10/2021	5	10	

Acres of Grading (Site Preparation Phase): 3

Acres of Grading (Grading Phase): 2

Acres of Paving: 0

Residential Indoor: 399,330; Residential Outdoor: 133,110; Non-Residential Indoor: 2,400; Non-Residential Outdoor: 800; Striped Parking Area: 1,098 (Architectural Coating – sqft)

OffRoad Equipment

Red Star Senior Housing v2 - Alameda County, Summer

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Rubber Tired Dozers	1	8.00	247	0.40
Demolition	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Site Preparation	Bore/Drill Rigs	1	8.00	221	0.50
Site Preparation	Graders	1	8.00	187	0.41
Site Preparation	Scrapers	1	8.00	367	0.48
Site Preparation	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Tractors/Loaders/Backhoes	2	7.00	97	0.37
Building Construction	Cranes	1	8.00	231	0.29
Building Construction	Forklifts	2	7.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	1	6.00	97	0.37
Building Construction	Welders	3	8.00	46	0.45
Paving	Cement and Mortar Mixers	1	8.00	9	0.56
Paving	Pavers	1	8.00	130	0.42
Paving	Paving Equipment	1	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Architectural Coating	Air Compressors	1	6.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	5	13.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	4	10.00	0.00	750.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	4	10.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	8	168.00	27.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	34.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Demolition - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.9930	19.6966	14.4925	0.0241		1.0409	1.0409		0.9715	0.9715		2,322.7171	2,322.7171	0.5940		2,337.5658
Total	**1.9930**	**19.6966**	**14.4925**	**0.0241**		**1.0409**	**1.0409**		**0.9715**	**0.9715**		**2,322.7171**	**2,322.7171**	**0.5940**		**2,337.5658**

3.2 Demolition - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0439	0.0261	0.3386	1.0500e-003	0.1068	6.9000e-004	0.1075	0.0283	6.4000e-004	0.0290		104.8291	104.8291	2.4900e-003		104.8913
Total	**0.0439**	**0.0261**	**0.3386**	**1.0500e-003**	**0.1068**	**6.9000e-004**	**0.1075**	**0.0283**	**6.4000e-004**	**0.0290**		**104.8291**	**104.8291**	**2.4900e-003**		**104.8913**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.9930	19.6966	14.4925	0.0241		1.0409	1.0409		0.9715	0.9715	0.0000	2,322.7171	2,322.7171	0.5940		2,337.5658
Total	**1.9930**	**19.6966**	**14.4925**	**0.0241**		**1.0409**	**1.0409**		**0.9715**	**0.9715**	**0.0000**	**2,322.7171**	**2,322.7171**	**0.5940**		**2,337.5658**

3.2 Demolition - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0439	0.0261	0.3386	1.0500e-003	0.1068	6.9000e-004	0.1075	0.0283	6.4000e-004	0.0290		104.8291	104.8291	2.4900e-003		104.8913
Total	**0.0439**	**0.0261**	**0.3386**	**1.0500e-003**	**0.1068**	**6.9000e-004**	**0.1075**	**0.0283**	**6.4000e-004**	**0.0290**		**104.8291**	**104.8291**	**2.4900e-003**		**104.8913**

3.3 Site Preparation - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					1.9300	0.0000	1.9300	0.2231	0.0000	0.2231			0.0000			0.0000
Off-Road	1.8045	21.3090	12.8236	0.0339		0.7935	0.7935		0.7300	0.7300		3,284.9456	3,284.9456	1.0624		3,311.5061
Total	**1.8045**	**21.3090**	**12.8236**	**0.0339**	**1.9300**	**0.7935**	**2.7235**	**0.2231**	**0.7300**	**0.9532**		**3,284.9456**	**3,284.9456**	**1.0624**		**3,311.5061**

3.3 Site Preparation - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	2.9700	99.2099	18.1063	0.2962	6.5653	0.3070	6.8723	1.8003	0.2937	2.0940		31,497.2379	31,497.2379	1.5019		31,534.7848
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0338	0.0201	0.2605	8.1000e-004	0.0822	5.3000e-004	0.0827	0.0218	4.9000e-004	0.0223		80.6378	80.6378	1.9200e-003		80.6856
Total	**3.0038**	**99.2300**	**18.3668**	**0.2971**	**6.6475**	**0.3075**	**6.9550**	**1.8221**	**0.2942**	**2.1162**		**31,577.8757**	**31,577.8757**	**1.5038**		**31,615.4705**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					1.9300	0.0000	1.9300	0.2231	0.0000	0.2231			0.0000			0.0000
Off-Road	1.8045	21.3090	12.8236	0.0339		0.7935	0.7935		0.7300	0.7300	0.0000	3,284.9456	3,284.9456	1.0624		3,311.5061
Total	**1.8045**	**21.3090**	**12.8236**	**0.0339**	**1.9300**	**0.7935**	**2.7235**	**0.2231**	**0.7300**	**0.9532**	**0.0000**	**3,284.9456**	**3,284.9456**	**1.0624**		**3,311.5061**

3.3 Site Preparation - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	2.9700	99.2099	18.1063	0.2962	6.5653	0.3070	6.8723	1.8003	0.2937	2.0940		31,497.2379	31,497.2379	1.5019		31,534.7848
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0338	0.0201	0.2605	8.1000e-004	0.0822	5.3000e-004	0.0827	0.0218	4.9000e-004	0.0223		80.6378	80.6378	1.9200e-003		80.6856
Total	**3.0038**	**99.2300**	**18.3668**	**0.2971**	**6.6475**	**0.3075**	**6.9550**	**1.8221**	**0.2942**	**2.1162**		**31,577.8757**	**31,577.8757**	**1.5038**		**31,615.4705**

3.4 Grading - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					6.5523	0.0000	6.5523	3.3675	0.0000	3.3675			0.0000			0.0000
Off-Road	1.8271	20.2135	9.7604	0.0206		0.9158	0.9158		0.8425	0.8425		1,995.6114	1,995.6114	0.6454		2,011.7470
Total	**1.8271**	**20.2135**	**9.7604**	**0.0206**	**6.5523**	**0.9158**	**7.4681**	**3.3675**	**0.8425**	**4.2100**		**1,995.6114**	**1,995.6114**	**0.6454**		**2,011.7470**

3.4 Grading - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0338	0.0201	0.2605	8.1000e-004	0.0822	5.3000e-004	0.0827	0.0218	4.9000e-004	0.0223		80.6378	80.6378	1.9200e-003		80.6856
Total	**0.0338**	**0.0201**	**0.2605**	**8.1000e-004**	**0.0822**	**5.3000e-004**	**0.0827**	**0.0218**	**4.9000e-004**	**0.0223**		**80.6378**	**80.6378**	**1.9200e-003**		**80.6856**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					6.5523	0.0000	6.5523	3.3675	0.0000	3.3675			0.0000			0.0000
Off-Road	1.8271	20.2135	9.7604	0.0206		0.9158	0.9158		0.8425	0.8425	0.0000	1,995.6114	1,995.6114	0.6454		2,011.7470
Total	**1.8271**	**20.2135**	**9.7604**	**0.0206**	**6.5523**	**0.9158**	**7.4681**	**3.3675**	**0.8425**	**4.2100**	**0.0000**	**1,995.6114**	**1,995.6114**	**0.6454**		**2,011.7470**

3.4 Grading - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0338	0.0201	0.2605	8.1000e-004	0.0822	5.3000e-004	0.0827	0.0218	4.9000e-004	0.0223		80.6378	80.6378	1.9200e-003		80.6856
Total	**0.0338**	**0.0201**	**0.2605**	**8.1000e-004**	**0.0822**	**5.3000e-004**	**0.0827**	**0.0218**	**4.9000e-004**	**0.0223**		**80.6378**	**80.6378**	**1.9200e-003**		**80.6856**

3.5 Building Construction - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.0451	16.0275	14.5629	0.0250		0.8173	0.8173		0.7831	0.7831		2,288.9355	2,288.9355	0.4503		2,300.1935
Total	**2.0451**	**16.0275**	**14.5629**	**0.0250**		**0.8173**	**0.8173**		**0.7831**	**0.7831**		**2,288.9355**	**2,288.9355**	**0.4503**		**2,300.1935**

3.5 Building Construction - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0817	2.8598	0.5683	7.4700e-003	0.1830	5.9400e-003	0.1889	0.0527	5.6800e-003	0.0584		788.8061	788.8061	0.0410		789.8303
Worker	0.5675	0.3374	4.3763	0.0136	1.3801	8.9300e-003	1.3890	0.3661	8.2200e-003	0.3743		1,354.7143	1,354.7143	0.0322		1,355.5186
Total	**0.6492**	**3.1972**	**4.9446**	**0.0211**	**1.5630**	**0.0149**	**1.5779**	**0.4187**	**0.0139**	**0.4327**		**2,143.5204**	**2,143.5204**	**0.0731**		**2,145.3489**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.0451	16.0275	14.5629	0.0250		0.8173	0.8173		0.7831	0.7831	0.0000	2,288.9355	2,288.9355	0.4503		2,300.1935
Total	**2.0451**	**16.0275**	**14.5629**	**0.0250**		**0.8173**	**0.8173**		**0.7831**	**0.7831**	**0.0000**	**2,288.9355**	**2,288.9355**	**0.4503**		**2,300.1935**

3.5 Building Construction - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0817	2.8598	0.5683	7.4700e-003	0.1830	5.9400e-003	0.1889	0.0527	5.6800e-003	0.0584		788.8061	788.8061	0.0410		789.8303
Worker	0.5675	0.3374	4.3763	0.0136	1.3801	8.9300e-003	1.3890	0.3661	8.2200e-003	0.3743		1,354.7143	1,354.7143	0.0322		1,355.5186
Total	**0.6492**	**3.1972**	**4.9446**	**0.0211**	**1.5630**	**0.0149**	**1.5779**	**0.4187**	**0.0139**	**0.4327**		**2,143.5204**	**2,143.5204**	**0.0731**		**2,145.3489**

3.6 Paving - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.0633	10.6478	11.7756	0.0178		0.5826	0.5826		0.5371	0.5371		1,709.1107	1,709.1107	0.5417		1,722.6524
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.0633**	**10.6478**	**11.7756**	**0.0178**		**0.5826**	**0.5826**		**0.5371**	**0.5371**		**1,709.1107**	**1,709.1107**	**0.5417**		**1,722.6524**

3.6 Paving - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0507	0.0301	0.3907	1.2100e-003	0.1232	8.0000e-004	0.1240	0.0327	7.3000e-004	0.0334		120.9566	120.9566	2.8700e-003		121.0285
Total	**0.0507**	**0.0301**	**0.3907**	**1.2100e-003**	**0.1232**	**8.0000e-004**	**0.1240**	**0.0327**	**7.3000e-004**	**0.0334**		**120.9566**	**120.9566**	**2.8700e-003**		**121.0285**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.0633	10.6478	11.7756	0.0178		0.5826	0.5826		0.5371	0.5371	0.0000	1,709.1107	1,709.1107	0.5417		1,722.6524
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.0633**	**10.6478**	**11.7756**	**0.0178**		**0.5826**	**0.5826**		**0.5371**	**0.5371**	**0.0000**	**1,709.1107**	**1,709.1107**	**0.5417**		**1,722.6524**

3.6 Paving - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0507	0.0301	0.3907	1.2100e-003	0.1232	8.0000e-004	0.1240	0.0327	7.3000e-004	0.0334		120.9566	120.9566	2.8700e-003		121.0285
Total	**0.0507**	**0.0301**	**0.3907**	**1.2100e-003**	**0.1232**	**8.0000e-004**	**0.1240**	**0.0327**	**7.3000e-004**	**0.0334**		**120.9566**	**120.9566**	**2.8700e-003**		**121.0285**

3.7 Architectural Coating - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	280.0662					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2189	1.5268	1.8176	2.9700e-003		0.0941	0.0941		0.0941	0.0941		281.4481	281.4481	0.0193		281.9309
Total	**280.2851**	**1.5268**	**1.8176**	**2.9700e-003**		**0.0941**	**0.0941**		**0.0941**	**0.0941**		**281.4481**	**281.4481**	**0.0193**		**281.9309**

3.7 Architectural Coating - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1149	0.0683	0.8857	2.7500e-003	0.2793	1.8100e-003	0.2811	0.0741	1.6600e-003	0.0758		274.1684	274.1684	6.5100e-003		274.3311
Total	**0.1149**	**0.0683**	**0.8857**	**2.7500e-003**	**0.2793**	**1.8100e-003**	**0.2811**	**0.0741**	**1.6600e-003**	**0.0758**		**274.1684**	**274.1684**	**6.5100e-003**		**274.3311**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	280.0662					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2189	1.5268	1.8176	2.9700e-003		0.0941	0.0941		0.0941	0.0941	0.0000	281.4481	281.4481	0.0193		281.9309
Total	**280.2851**	**1.5268**	**1.8176**	**2.9700e-003**		**0.0941**	**0.0941**		**0.0941**	**0.0941**	**0.0000**	**281.4481**	**281.4481**	**0.0193**		**281.9309**

3.7 Architectural Coating - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1149	0.0683	0.8857	2.7500e-003	0.2793	1.8100e-003	0.2811	0.0741	1.6600e-003	0.0758		274.1684	274.1684	6.5100e-003		274.3311
Total	**0.1149**	**0.0683**	**0.8857**	**2.7500e-003**	**0.2793**	**1.8100e-003**	**0.2811**	**0.0741**	**1.6600e-003**	**0.0758**		**274.1684**	**274.1684**	**6.5100e-003**		**274.3311**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	1.0836	6.2480	10.6023	0.0415	3.1504	0.0372	3.1876	0.8441	0.0350	0.8791		4,213.6145	4,213.6145	0.1709		4,217.8858
Unmitigated	1.0836	6.2480	10.6023	0.0415	3.1504	0.0372	3.1876	0.8441	0.0350	0.8791		4,213.6145	4,213.6145	0.1709		4,217.8858

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Mid Rise	639.36	639.36	639.36	1,476,671	1,476,671
Enclosed Parking with Elevator	0.00	0.00	0.00		
High Turnover (Sit Down Restaurant)	0.00	0.00	0.00		
Total	639.36	639.36	639.36	1,476,671	1,476,671

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Apartments Mid Rise	10.80	4.80	5.70	31.00	15.00	54.00	86	11	3
Enclosed Parking with Elevator	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0
High Turnover (Sit Down	9.50	7.30	7.30	8.50	72.50	19.00	37	20	43

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Apartments Mid Rise	0.560371	0.039285	0.190378	0.108244	0.016023	0.005202	0.023981	0.045200	0.002184	0.002561	0.005524	0.000326	0.000721
Enclosed Parking with Elevator	0.560371	0.039285	0.190378	0.108244	0.016023	0.005202	0.023981	0.045200	0.002184	0.002561	0.005524	0.000326	0.000721
High Turnover (Sit Down Restaurant)	0.560371	0.039285	0.190378	0.108244	0.016023	0.005202	0.023981	0.045200	0.002184	0.002561	0.005524	0.000326	0.000721

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0652	0.5615	0.2689	3.5600e-003		0.0451	0.0451		0.0451	0.0451		711.3062	711.3062	0.0136	0.0130	715.5331
NaturalGas Unmitigated	0.0652	0.5615	0.2689	3.5600e-003		0.0451	0.0451		0.0451	0.0451		711.3062	711.3062	0.0136	0.0130	715.5331

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Apartments Mid Rise	5310.01	0.0573	0.4894	0.2082	3.1200e-003		0.0396	0.0396		0.0396	0.0396		624.7076	624.7076	0.0120	0.0115	628.4200
Enclosed Parking with Elevator	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
High Turnover (Sit Down Restaurant)	736.088	7.9400e-003	0.0722	0.0606	4.3000e-004		5.4800e-003	5.4800e-003		5.4800e-003	5.4800e-003		86.5986	86.5986	1.6600e-003	1.5900e-003	87.1132
Total		**0.0652**	**0.5615**	**0.2689**	**3.5500e-003**		**0.0450**	**0.0450**		**0.0450**	**0.0450**		**711.3062**	**711.3062**	**0.0136**	**0.0130**	**715.5331**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Apartments Mid Rise	5.31001	0.0573	0.4894	0.2082	3.1200e-003		0.0396	0.0396		0.0396	0.0396		624.7076	624.7076	0.0120	0.0115	628.4200
Enclosed Parking with Elevator	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
High Turnover (Sit Down Restaurant)	0.736088	7.9400e-003	0.0722	0.0606	4.3000e-004		5.4800e-003	5.4800e-003		5.4800e-003	5.4800e-003		86.5986	86.5986	1.6600e-003	1.5900e-003	87.1132
Total		**0.0652**	**0.5615**	**0.2689**	**3.5500e-003**		**0.0450**	**0.0450**		**0.0450**	**0.0450**		**711.3062**	**711.3062**	**0.0136**	**0.0130**	**715.5331**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	5.5823	0.2115	18.3397	9.7000e-004		0.1013	0.1013		0.1013	0.1013	0.0000	32.9886	32.9886	0.0318	0.0000	33.7847
Unmitigated	5.5823	0.2115	18.3397	9.7000e-004		0.1013	0.1013		0.1013	0.1013	0.0000	32.9886	32.9886	0.0318	0.0000	33.7847

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.7673					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	4.2608					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.5542	0.2115	18.3397	9.7000e-004		0.1013	0.1013		0.1013	0.1013		32.9886	32.9886	0.0318		33.7847
Total	**5.5823**	**0.2115**	**18.3397**	**9.7000e-004**		**0.1013**	**0.1013**		**0.1013**	**0.1013**	**0.0000**	**32.9886**	**32.9886**	**0.0318**	**0.0000**	**33.7847**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.7673					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	4.2608					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.5542	0.2115	18.3397	9.7000e-004		0.1013	0.1013		0.1013	0.1013		32.9886	32.9886	0.0318		33.7847
Total	**5.5823**	**0.2115**	**18.3397**	**9.7000e-004**		**0.1013**	**0.1013**		**0.1013**	**0.1013**	**0.0000**	**32.9886**	**32.9886**	**0.0318**	**0.0000**	**33.7847**

7.0 Water Detail

7.1 Mitigation Measures Water

Apply Water Conservation Strategy

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type
Emergency Generator	1	0	50	1341	0.73	Diesel

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

10.1 Stationary Sources

Unmitigated/Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Equipment Type	lb/day										lb/day					
Emergency Generator - Diesel (750 - 9999 HP)	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

11.0 Vegetation

Red Star Senior Housing v2

Alameda County, Winter

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Enclosed Parking with Elevator	44.00	Space	0.00	18,300.00	0
High Turnover (Sit Down Restaurant)	1.60	1000sqft	0.00	1,600.00	0
Apartments Mid Rise	222.00	Dwelling Unit	2.00	197,200.00	556

1.2 Other Project Characteristics

Urbanization	Urban	**Wind Speed (m/s)**	2.2	**Precipitation Freq (Days)**	63
Climate Zone	5			**Operational Year**	2022
Utility Company	Pacific Gas & Electric Company				
CO2 Intensity (lb/MWhr)	294	**CH4 Intensity (lb/MWhr)**	0.029	**N2O Intensity (lb/MWhr)**	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Consistent with Analysis' model.

Land Use - Consistent with Analysis' model.

Off-road Equipment - Consistent with Analysis' model.

Grading - Consistent with Analysis' model.

Vehicle Trips - See SWAPE comment about operational vehicle trip rates.

Woodstoves - Consistent with Analysis' model.

Energy Use - See SWAPE comment about energy use values.

Water And Wastewater - See SWAPE comment about waste and wastewater values.

Solid Waste - See SWAPE comment about solid waste generation rates.

Water Mitigation - Consistent with Analysis' model.

Stationary Sources - Emergency Generators and Fire Pumps - Consistent with Analysis' model.

Stationary Sources - Emergency Generators and Fire Pumps EF - Consistent with Analysis' model.

Table Name	Column Name	Default Value	New Value
tblFireplaces	NumberGas	33.30	0.00
tblFireplaces	NumberNoFireplace	8.88	0.00
tblFireplaces	NumberWood	37.74	0.00
tblGrading	MaterialExported	0.00	3,000.00
tblGrading	MaterialImported	0.00	3,000.00
tblLandUse	LandUseSquareFeet	17,600.00	18,300.00
tblLandUse	LandUseSquareFeet	222,000.00	197,200.00
tblLandUse	LotAcreage	0.40	0.00
tblLandUse	LotAcreage	0.04	0.00
tblLandUse	LotAcreage	5.84	2.00
tblLandUse	Population	635.00	556.00
tblProjectCharacteristics	CO2IntensityFactor	641.35	294
tblStationaryGeneratorsPumpsEF	CH4_EF	0.07	0.07
tblStationaryGeneratorsPumpsUse	HorsePowerValue	0.00	1,341.00
tblStationaryGeneratorsPumpsUse	HoursPerYear	0.00	50.00
tblStationaryGeneratorsPumpsUse	NumberOfEquipment	0.00	1.00
tblVehicleTrips	ST_TR	6.39	2.88
tblVehicleTrips	ST_TR	158.37	0.00
tblVehicleTrips	SU_TR	5.86	2.88
tblVehicleTrips	SU_TR	131.84	0.00
tblVehicleTrips	WD_TR	6.65	2.88
tblVehicleTrips	WD_TR	127.15	0.00
tblWoodstoves	NumberCatalytic	4.44	0.00
tblWoodstoves	NumberNoncatalytic	4.44	0.00

2.0 Emissions Summary

2.1 Overall Construction (Maximum Daily Emission)

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2021	280.4049	122.7616	32.7420	0.3254	8.5775	1.1059	9.6834	3.3893	1.0289	4.2323	0.0000	34,273.0372	34,273.0372	2.6761	0.0000	34,339.9402
Maximum	**280.4049**	**122.7616**	**32.7420**	**0.3254**	**8.5775**	**1.1059**	**9.6834**	**3.3893**	**1.0289**	**4.2323**	**0.0000**	**34,273.0372**	**34,273.0372**	**2.6761**	**0.0000**	**34,339.9402**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	lb/day										lb/day					
2021	280.4049	122.7616	32.7420	0.3254	8.5775	1.1059	9.6834	3.3893	1.0289	4.2323	0.0000	34,273.0372	34,273.0372	2.6761	0.0000	34,339.9402
Maximum	**280.4049**	**122.7616**	**32.7420**	**0.3254**	**8.5775**	**1.1059**	**9.6834**	**3.3893**	**1.0289**	**4.2323**	**0.0000**	**34,273.0372**	**34,273.0372**	**2.6761**	**0.0000**	**34,339.9402**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	5.5823	0.2115	18.3397	9.7000e-004		0.1013	0.1013		0.1013	0.1013	0.0000	32.9886	32.9886	0.0318	0.0000	33.7847
Energy	0.0652	0.5615	0.2689	3.5600e-003		0.0451	0.0451		0.0451	0.0451		711.3062	711.3062	0.0136	0.0130	715.5331
Mobile	0.9359	6.4608	10.7976	0.0389	3.1504	0.0376	3.1880	0.8441	0.0353	0.8794		3,953.0099	3,953.0099	0.1788		3,957.4785
Stationary	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**6.5834**	**7.2339**	**29.4061**	**0.0434**	**3.1504**	**0.1840**	**3.3343**	**0.8441**	**0.1817**	**1.0258**	**0.0000**	**4,697.3047**	**4,697.3047**	**0.2242**	**0.0130**	**4,706.7963**

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Area	5.5823	0.2115	18.3397	9.7000e-004		0.1013	0.1013		0.1013	0.1013	0.0000	32.9886	32.9886	0.0318	0.0000	33.7847
Energy	0.0652	0.5615	0.2689	3.5600e-003		0.0451	0.0451		0.0451	0.0451		711.3062	711.3062	0.0136	0.0130	715.5331
Mobile	0.9359	6.4608	10.7976	0.0389	3.1504	0.0376	3.1880	0.8441	0.0353	0.8794		3,953.0099	3,953.0099	0.1788		3,957.4785
Stationary	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**6.5834**	**7.2339**	**29.4061**	**0.0434**	**3.1504**	**0.1840**	**3.3343**	**0.8441**	**0.1817**	**1.0258**	**0.0000**	**4,697.3047**	**4,697.3047**	**0.2242**	**0.0130**	**4,706.7963**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Demolition	Demolition	1/1/2021	1/28/2021	5	20	
2	Site Preparation	Site Preparation	1/29/2021	2/1/2021	5	2	
3	Grading	Grading	2/2/2021	2/5/2021	5	4	
4	Building Construction	Building Construction	2/6/2021	11/12/2021	5	200	
5	Paving	Paving	11/13/2021	11/26/2021	5	10	
6	Architectural Coating	Architectural Coating	11/27/2021	12/10/2021	5	10	

Acres of Grading (Site Preparation Phase): 3

Acres of Grading (Grading Phase): 2

Acres of Paving: 0

Residential Indoor: 399,330; Residential Outdoor: 133,110; Non-Residential Indoor: 2,400; Non-Residential Outdoor: 800; Striped Parking Area: 1,098 (Architectural Coating – sqft)

OffRoad Equipment

Red Star Senior Housing v2 - Alameda County, Winter

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Demolition	Concrete/Industrial Saws	1	8.00	81	0.73
Demolition	Rubber Tired Dozers	1	8.00	247	0.40
Demolition	Tractors/Loaders/Backhoes	3	8.00	97	0.37
Site Preparation	Bore/Drill Rigs	1	8.00	221	0.50
Site Preparation	Graders	1	8.00	187	0.41
Site Preparation	Scrapers	1	8.00	367	0.48
Site Preparation	Tractors/Loaders/Backhoes	1	7.00	97	0.37
Grading	Graders	1	8.00	187	0.41
Grading	Rubber Tired Dozers	1	8.00	247	0.40
Grading	Tractors/Loaders/Backhoes	2	7.00	97	0.37
Building Construction	Cranes	1	8.00	231	0.29
Building Construction	Forklifts	2	7.00	89	0.20
Building Construction	Generator Sets	1	8.00	84	0.74
Building Construction	Tractors/Loaders/Backhoes	1	6.00	97	0.37
Building Construction	Welders	3	8.00	46	0.45
Paving	Cement and Mortar Mixers	1	8.00	9	0.56
Paving	Pavers	1	8.00	130	0.42
Paving	Paving Equipment	1	8.00	132	0.36
Paving	Rollers	2	8.00	80	0.38
Paving	Tractors/Loaders/Backhoes	1	8.00	97	0.37
Architectural Coating	Air Compressors	1	6.00	78	0.48

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Demolition	5	13.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Site Preparation	4	10.00	0.00	750.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Grading	4	10.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Building Construction	8	168.00	27.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Paving	6	15.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT
Architectural Coating	1	34.00	0.00	0.00	10.80	7.30	20.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Demolition - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.9930	19.6966	14.4925	0.0241		1.0409	1.0409		0.9715	0.9715		2,322.7171	2,322.7171	0.5940		2,337.5658
Total	**1.9930**	**19.6966**	**14.4925**	**0.0241**		**1.0409**	**1.0409**		**0.9715**	**0.9715**		**2,322.7171**	**2,322.7171**	**0.5940**		**2,337.5658**

3.2 Demolition - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0458	0.0325	0.3186	9.7000e-004	0.1068	6.9000e-004	0.1075	0.0283	6.4000e-004	0.0290		96.4654	96.4654	2.3300e-003		96.5236
Total	**0.0458**	**0.0325**	**0.3186**	**9.7000e-004**	**0.1068**	**6.9000e-004**	**0.1075**	**0.0283**	**6.4000e-004**	**0.0290**		**96.4654**	**96.4654**	**2.3300e-003**		**96.5236**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.9930	19.6966	14.4925	0.0241		1.0409	1.0409		0.9715	0.9715	0.0000	2,322.7171	2,322.7171	0.5940		2,337.5658
Total	**1.9930**	**19.6966**	**14.4925**	**0.0241**		**1.0409**	**1.0409**		**0.9715**	**0.9715**	**0.0000**	**2,322.7171**	**2,322.7171**	**0.5940**		**2,337.5658**

3.2 Demolition - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0458	0.0325	0.3186	9.7000e-004	0.1068	6.9000e-004	0.1075	0.0283	6.4000e-004	0.0290		96.4654	96.4654	2.3300e-003		96.5236
Total	**0.0458**	**0.0325**	**0.3186**	**9.7000e-004**	**0.1068**	**6.9000e-004**	**0.1075**	**0.0283**	**6.4000e-004**	**0.0290**		**96.4654**	**96.4654**	**2.3300e-003**		**96.5236**

3.3 Site Preparation - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					1.9300	0.0000	1.9300	0.2231	0.0000	0.2231			0.0000			0.0000
Off-Road	1.8045	21.3090	12.8236	0.0339		0.7935	0.7935		0.7300	0.7300		3,284.9456	3,284.9456	1.0624		3,311.5061
Total	**1.8045**	**21.3090**	**12.8236**	**0.0339**	**1.9300**	**0.7935**	**2.7235**	**0.2231**	**0.7300**	**0.9532**		**3,284.9456**	**3,284.9456**	**1.0624**		**3,311.5061**

3.3 Site Preparation - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	3.0522	101.4277	19.6733	0.2908	6.5653	0.3118	6.8771	1.8003	0.2983	2.0986		30,913.8874	30,913.8874	1.6119		30,954.1852
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0352	0.0250	0.2451	7.4000e-004	0.0822	5.3000e-004	0.0827	0.0218	4.9000e-004	0.0223		74.2042	74.2042	1.7900e-003		74.2489
Total	**3.0874**	**101.4527**	**19.9184**	**0.2915**	**6.6475**	**0.3124**	**6.9598**	**1.8221**	**0.2988**	**2.1209**		**30,988.0916**	**30,988.0916**	**1.6137**		**31,028.4341**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					1.9300	0.0000	1.9300	0.2231	0.0000	0.2231			0.0000			0.0000
Off-Road	1.8045	21.3090	12.8236	0.0339		0.7935	0.7935		0.7300	0.7300	0.0000	3,284.9456	3,284.9456	1.0624		3,311.5061
Total	**1.8045**	**21.3090**	**12.8236**	**0.0339**	**1.9300**	**0.7935**	**2.7235**	**0.2231**	**0.7300**	**0.9532**	**0.0000**	**3,284.9456**	**3,284.9456**	**1.0624**		**3,311.5061**

3.3 Site Preparation - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	3.0522	101.4277	19.6733	0.2908	6.5653	0.3118	6.8771	1.8003	0.2983	2.0986		30,913.8874	30,913.8874	1.6119		30,954.1852
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0352	0.0250	0.2451	7.4000e-004	0.0822	5.3000e-004	0.0827	0.0218	4.9000e-004	0.0223		74.2042	74.2042	1.7900e-003		74.2489
Total	**3.0874**	**101.4527**	**19.9184**	**0.2915**	**6.6475**	**0.3124**	**6.9598**	**1.8221**	**0.2988**	**2.1209**		**30,988.0916**	**30,988.0916**	**1.6137**		**31,028.4341**

3.4 Grading - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					6.5523	0.0000	6.5523	3.3675	0.0000	3.3675			0.0000			0.0000
Off-Road	1.8271	20.2135	9.7604	0.0206		0.9158	0.9158		0.8425	0.8425		1,995.6114	1,995.6114	0.6454		2,011.7470
Total	**1.8271**	**20.2135**	**9.7604**	**0.0206**	**6.5523**	**0.9158**	**7.4681**	**3.3675**	**0.8425**	**4.2100**		**1,995.6114**	**1,995.6114**	**0.6454**		**2,011.7470**

3.4 Grading - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0352	0.0250	0.2451	7.4000e-004	0.0822	5.3000e-004	0.0827	0.0218	4.9000e-004	0.0223		74.2042	74.2042	1.7900e-003		74.2489
Total	**0.0352**	**0.0250**	**0.2451**	**7.4000e-004**	**0.0822**	**5.3000e-004**	**0.0827**	**0.0218**	**4.9000e-004**	**0.0223**		**74.2042**	**74.2042**	**1.7900e-003**		**74.2489**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					6.5523	0.0000	6.5523	3.3675	0.0000	3.3675			0.0000			0.0000
Off-Road	1.8271	20.2135	9.7604	0.0206		0.9158	0.9158		0.8425	0.8425	0.0000	1,995.6114	1,995.6114	0.6454		2,011.7470
Total	**1.8271**	**20.2135**	**9.7604**	**0.0206**	**6.5523**	**0.9158**	**7.4681**	**3.3675**	**0.8425**	**4.2100**	**0.0000**	**1,995.6114**	**1,995.6114**	**0.6454**		**2,011.7470**

3.4 Grading - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0352	0.0250	0.2451	7.4000e-004	0.0822	5.3000e-004	0.0827	0.0218	4.9000e-004	0.0223		74.2042	74.2042	1.7900e-003		74.2489
Total	**0.0352**	**0.0250**	**0.2451**	**7.4000e-004**	**0.0822**	**5.3000e-004**	**0.0827**	**0.0218**	**4.9000e-004**	**0.0223**		**74.2042**	**74.2042**	**1.7900e-003**		**74.2489**

3.5 Building Construction - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.0451	16.0275	14.5629	0.0250		0.8173	0.8173		0.7831	0.7831		2,288.9355	2,288.9355	0.4503		2,300.1935
Total	**2.0451**	**16.0275**	**14.5629**	**0.0250**		**0.8173**	**0.8173**		**0.7831**	**0.7831**		**2,288.9355**	**2,288.9355**	**0.4503**		**2,300.1935**

3.5 Building Construction - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0864	2.8808	0.6615	7.2700e-003	0.1830	6.1300e-003	0.1891	0.0527	5.8600e-003	0.0585		767.1040	767.1040	0.0452		768.2340
Worker	0.5921	0.4195	4.1176	0.0125	1.3801	8.9300e-003	1.3890	0.3661	8.2200e-003	0.3743		1,246.6303	1,246.6303	0.0301		1,247.3822
Total	**0.6785**	**3.3003**	**4.7791**	**0.0198**	**1.5630**	**0.0151**	**1.5781**	**0.4187**	**0.0141**	**0.4328**		**2,013.7343**	**2,013.7343**	**0.0753**		**2,015.6162**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	2.0451	16.0275	14.5629	0.0250		0.8173	0.8173		0.7831	0.7831	0.0000	2,288.9355	2,288.9355	0.4503		2,300.1935
Total	**2.0451**	**16.0275**	**14.5629**	**0.0250**		**0.8173**	**0.8173**		**0.7831**	**0.7831**	**0.0000**	**2,288.9355**	**2,288.9355**	**0.4503**		**2,300.1935**

3.5 Building Construction - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0864	2.8808	0.6615	7.2700e-003	0.1830	6.1300e-003	0.1891	0.0527	5.8600e-003	0.0585		767.1040	767.1040	0.0452		768.2340
Worker	0.5921	0.4195	4.1176	0.0125	1.3801	8.9300e-003	1.3890	0.3661	8.2200e-003	0.3743		1,246.6303	1,246.6303	0.0301		1,247.3822
Total	**0.6785**	**3.3003**	**4.7791**	**0.0198**	**1.5630**	**0.0151**	**1.5781**	**0.4187**	**0.0141**	**0.4328**		**2,013.7343**	**2,013.7343**	**0.0753**		**2,015.6162**

3.6 Paving - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.0633	10.6478	11.7756	0.0178		0.5826	0.5826		0.5371	0.5371		1,709.1107	1,709.1107	0.5417		1,722.6524
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.0633**	**10.6478**	**11.7756**	**0.0178**		**0.5826**	**0.5826**		**0.5371**	**0.5371**		**1,709.1107**	**1,709.1107**	**0.5417**		**1,722.6524**

3.6 Paving - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0529	0.0375	0.3676	1.1200e-003	0.1232	8.0000e-004	0.1240	0.0327	7.3000e-004	0.0334		111.3063	111.3063	2.6900e-003		111.3734
Total	**0.0529**	**0.0375**	**0.3676**	**1.1200e-003**	**0.1232**	**8.0000e-004**	**0.1240**	**0.0327**	**7.3000e-004**	**0.0334**		**111.3063**	**111.3063**	**2.6900e-003**		**111.3734**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.0633	10.6478	11.7756	0.0178		0.5826	0.5826		0.5371	0.5371	0.0000	1,709.1107	1,709.1107	0.5417		1,722.6524
Paving	0.0000					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	**1.0633**	**10.6478**	**11.7756**	**0.0178**		**0.5826**	**0.5826**		**0.5371**	**0.5371**	**0.0000**	**1,709.1107**	**1,709.1107**	**0.5417**		**1,722.6524**

3.6 Paving - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0529	0.0375	0.3676	1.1200e-003	0.1232	8.0000e-004	0.1240	0.0327	7.3000e-004	0.0334		111.3063	111.3063	2.6900e-003		111.3734
Total	**0.0529**	**0.0375**	**0.3676**	**1.1200e-003**	**0.1232**	**8.0000e-004**	**0.1240**	**0.0327**	**7.3000e-004**	**0.0334**		**111.3063**	**111.3063**	**2.6900e-003**		**111.3734**

3.7 Architectural Coating - 2021

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	280.0662					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2189	1.5268	1.8176	2.9700e-003		0.0941	0.0941		0.0941	0.0941		281.4481	281.4481	0.0193		281.9309
Total	**280.2851**	**1.5268**	**1.8176**	**2.9700e-003**		**0.0941**	**0.0941**		**0.0941**	**0.0941**		**281.4481**	**281.4481**	**0.0193**		**281.9309**

3.7 Architectural Coating - 2021

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1198	0.0849	0.8333	2.5300e-003	0.2793	1.8100e-003	0.2811	0.0741	1.6600e-003	0.0758		252.2942	252.2942	6.0900e-003		252.4464
Total	**0.1198**	**0.0849**	**0.8333**	**2.5300e-003**	**0.2793**	**1.8100e-003**	**0.2811**	**0.0741**	**1.6600e-003**	**0.0758**		**252.2942**	**252.2942**	**6.0900e-003**		**252.4464**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	280.0662					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.2189	1.5268	1.8176	2.9700e-003		0.0941	0.0941		0.0941	0.0941	0.0000	281.4481	281.4481	0.0193		281.9309
Total	**280.2851**	**1.5268**	**1.8176**	**2.9700e-003**		**0.0941**	**0.0941**		**0.0941**	**0.0941**	**0.0000**	**281.4481**	**281.4481**	**0.0193**		**281.9309**

3.7 Architectural Coating - 2021

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.1198	0.0849	0.8333	2.5300e-003	0.2793	1.8100e-003	0.2811	0.0741	1.6600e-003	0.0758		252.2942	252.2942	6.0900e-003		252.4464
Total	**0.1198**	**0.0849**	**0.8333**	**2.5300e-003**	**0.2793**	**1.8100e-003**	**0.2811**	**0.0741**	**1.6600e-003**	**0.0758**		**252.2942**	**252.2942**	**6.0900e-003**		**252.4464**

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	0.9359	6.4608	10.7976	0.0389	3.1504	0.0376	3.1880	0.8441	0.0353	0.8794		3,953.0099	3,953.0099	0.1788		3,957.4785
Unmitigated	0.9359	6.4608	10.7976	0.0389	3.1504	0.0376	3.1880	0.8441	0.0353	0.8794		3,953.0099	3,953.0099	0.1788		3,957.4785

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
Apartments Mid Rise	639.36	639.36	639.36	1,476,671	1,476,671
Enclosed Parking with Elevator	0.00	0.00	0.00		
High Turnover (Sit Down Restaurant)	0.00	0.00	0.00		
Total	639.36	639.36	639.36	1,476,671	1,476,671

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
Apartments Mid Rise	10.80	4.80	5.70	31.00	15.00	54.00	86	11	3
Enclosed Parking with Elevator	9.50	7.30	7.30	0.00	0.00	0.00	0	0	0
High Turnover (Sit Down	9.50	7.30	7.30	8.50	72.50	19.00	37	20	43

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
Apartments Mid Rise	0.560371	0.039285	0.190378	0.108244	0.016023	0.005202	0.023981	0.045200	0.002184	0.002561	0.005524	0.000326	0.000721
Enclosed Parking with Elevator	0.560371	0.039285	0.190378	0.108244	0.016023	0.005202	0.023981	0.045200	0.002184	0.002561	0.005524	0.000326	0.000721
High Turnover (Sit Down Restaurant)	0.560371	0.039285	0.190378	0.108244	0.016023	0.005202	0.023981	0.045200	0.002184	0.002561	0.005524	0.000326	0.000721

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
NaturalGas Mitigated	0.0652	0.5615	0.2689	3.5600e-003		0.0451	0.0451		0.0451	0.0451		711.3062	711.3062	0.0136	0.0130	715.5331
NaturalGas Unmitigated	0.0652	0.5615	0.2689	3.5600e-003		0.0451	0.0451		0.0451	0.0451		711.3062	711.3062	0.0136	0.0130	715.5331

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Apartments Mid Rise	5310.01	0.0573	0.4894	0.2082	3.1200e-003		0.0396	0.0396		0.0396	0.0396		624.7076	624.7076	0.0120	0.0115	628.4200
Enclosed Parking with Elevator	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
High Turnover (Sit Down Restaurant)	736.088	7.9400e-003	0.0722	0.0606	4.3000e-004		5.4800e-003	5.4800e-003		5.4800e-003	5.4800e-003		86.5986	86.5986	1.6600e-003	1.5900e-003	87.1132
Total		**0.0652**	**0.5615**	**0.2689**	**3.5500e-003**		**0.0450**	**0.0450**		**0.0450**	**0.0450**		**711.3062**	**711.3062**	**0.0136**	**0.0130**	**715.5331**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	lb/day										lb/day					
Apartments Mid Rise	5.31001	0.0573	0.4894	0.2082	3.1200e-003		0.0396	0.0396		0.0396	0.0396		624.7076	624.7076	0.0120	0.0115	628.4200
Enclosed Parking with Elevator	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000
High Turnover (Sit Down Restaurant)	0.736088	7.9400e-003	0.0722	0.0606	4.3000e-004		5.4800e-003	5.4800e-003		5.4800e-003	5.4800e-003		86.5986	86.5986	1.6600e-003	1.5900e-003	87.1132
Total		**0.0652**	**0.5615**	**0.2689**	**3.5500e-003**		**0.0450**	**0.0450**		**0.0450**	**0.0450**		**711.3062**	**711.3062**	**0.0136**	**0.0130**	**715.5331**

6.0 Area Detail

6.1 Mitigation Measures Area

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Mitigated	5.5823	0.2115	18.3397	9.7000e-004		0.1013	0.1013		0.1013	0.1013	0.0000	32.9886	32.9886	0.0318	0.0000	33.7847
Unmitigated	5.5823	0.2115	18.3397	9.7000e-004		0.1013	0.1013		0.1013	0.1013	0.0000	32.9886	32.9886	0.0318	0.0000	33.7847

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.7673					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	4.2608					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.5542	0.2115	18.3397	9.7000e-004		0.1013	0.1013		0.1013	0.1013		32.9886	32.9886	0.0318		33.7847
Total	**5.5823**	**0.2115**	**18.3397**	**9.7000e-004**		**0.1013**	**0.1013**		**0.1013**	**0.1013**	**0.0000**	**32.9886**	**32.9886**	**0.0318**	**0.0000**	**33.7847**

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	lb/day										lb/day					
Architectural Coating	0.7673					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Consumer Products	4.2608					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Hearth	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	0.5542	0.2115	18.3397	9.7000e-004		0.1013	0.1013		0.1013	0.1013		32.9886	32.9886	0.0318		33.7847
Total	**5.5823**	**0.2115**	**18.3397**	**9.7000e-004**		**0.1013**	**0.1013**		**0.1013**	**0.1013**	**0.0000**	**32.9886**	**32.9886**	**0.0318**	**0.0000**	**33.7847**

7.0 Water Detail

7.1 Mitigation Measures Water

Apply Water Conservation Strategy

8.0 Waste Detail

8.1 Mitigation Measures Waste

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type
Emergency Generator	1	0	50	1341	0.73	Diesel

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

10.1 Stationary Sources

Unmitigated/Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Equipment Type	lb/day										lb/day					
Emergency Generator - Diesel (750 - 9999 HP)	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Total	**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**		**0.0000**

11.0 Vegetation

Attachment C

Start date and time 03/02/21 11:17:36

AERSCREEN 16216

1396 5th Street Construction

1396 5th Street Construction

---------- DATA ENTRY VALIDATION ----------

	METRIC	ENGLISH
** AREADATA **	---	---
Emission Rate:	0.288E-02 g/s	0.228E-01 lb/hr
Area Height:	3.00 meters	9.84 feet
Area Source Length:	105.00 meters	344.49 feet
Area Source Width:	34.00 meters	111.55 feet
Vertical Dimension:	1.50 meters	4.92 feet
Model Mode:	URBAN	
Population:	425097	
Dist to Ambient Air:	1.0 meters	3. feet

** BUILDING DATA **

No Building Downwash Parameters

** TERRAIN DATA **

No Terrain Elevations

Source Base Elevation: 0.0 meters 0.0 feet

Probe distance: 5000. meters 16404. feet

No flagpole receptors

No discrete receptors used

** FUMIGATION DATA **

No fumigation requested

** METEOROLOGY DATA **

Min/Max Temperature: 250.0 / 310.0 K -9.7 / 98.3 Deg F

Minimum Wind Speed: 0.5 m/s

Anemometer Height: 10.000 meters

Dominant Surface Profile: Urban

Dominant Climate Type: Average Moisture

Surface friction velocity (u*): not adjusted

DEBUG OPTION ON

AERSCREEN output file:

2021.03.02_13965thStreet_Construction.out

*** AERSCREEN Run is Ready to Begin

No terrain used, AERMAP will not be run

****

SURFACE CHARACTERISTICS & MAKEMET

Obtaining surface characteristics...

Using AERMET seasonal surface characteristics for Urban with Average Moisture

Season	Albedo	Bo	zo
Winter	0.35	1.50	1.000
Spring	0.14	1.00	1.000
Summer	0.16	2.00	1.000
Autumn	0.18	2.00	1.000

Creating met files aerscreen_01_01.sfc & aerscreen_01_01.pfl

Creating met files aerscreen_02_01.sfc & aerscreen_02_01.pfl

Creating met files aerscreen_03_01.sfc & aerscreen_03_01.pfl

Creating met files aerscreen_04_01.sfc & aerscreen_04_01.pfl

Buildings and/or terrain present or rectangular area source, skipping probe

FLOWSECTOR started 03/02/21 11:26:53

****

Running AERMOD

Processing Winter

Processing surface roughness sector 1

```
**************************************************

Processing wind flow sector   1

 AERMOD Finishes Successfully for FLOWSECTOR stage 2 Winter sector   0

    ********   WARNING MESSAGES   ********

               ***  NONE  ***

**************************************************

Processing wind flow sector   2

 AERMOD Finishes Successfully for FLOWSECTOR stage 2 Winter sector   5

    ********   WARNING MESSAGES   ********

               ***  NONE  ***

**************************************************

Processing wind flow sector   3

 AERMOD Finishes Successfully for FLOWSECTOR stage 2 Winter sector  10

    ********   WARNING MESSAGES   ********

               ***  NONE  ***
```

```
**************************************************

Processing wind flow sector   4

 AERMOD Finishes Successfully for FLOWSECTOR stage 2 Winter sector  15

    ********   WARNING MESSAGES   ********

               ***  NONE  ***

**************************************************

Processing wind flow sector   5

 AERMOD Finishes Successfully for FLOWSECTOR stage 2 Winter sector  20

    ********   WARNING MESSAGES   ********

               ***  NONE  ***

 ****************************************

  Running AERMOD

 Processing Spring

Processing surface roughness sector  1

**************************************************

Processing wind flow sector   1
```

```
 AERMOD Finishes Successfully for FLOWSECTOR stage 2 Spring sector   0

    ********   WARNING MESSAGES   ********

               ***  NONE  ***

**************************************************

Processing wind flow sector   2

 AERMOD Finishes Successfully for FLOWSECTOR stage 2 Spring sector   5

    ********   WARNING MESSAGES   ********

               ***  NONE  ***

**************************************************

Processing wind flow sector   3

 AERMOD Finishes Successfully for FLOWSECTOR stage 2 Spring sector  10

    ********   WARNING MESSAGES   ********

               ***  NONE  ***

**************************************************

Processing wind flow sector   4

 AERMOD Finishes Successfully for FLOWSECTOR stage 2 Spring sector  15
```

```
    ********   WARNING MESSAGES   ********

               ***  NONE  ***


**************************************************

Processing wind flow sector   5


 AERMOD Finishes Successfully for FLOWSECTOR stage 2 Spring sector  20


    ********   WARNING MESSAGES   ********

               ***  NONE  ***

 ****************************************


  Running AERMOD

 Processing Summer


Processing surface roughness sector  1


**************************************************

Processing wind flow sector   1


 AERMOD Finishes Successfully for FLOWSECTOR stage 2 Summer sector   0


    ********   WARNING MESSAGES   ********

               ***  NONE  ***
```

```
**************************************************

Processing wind flow sector   2

 AERMOD Finishes Successfully for FLOWSECTOR stage 2 Summer sector   5

    ********   WARNING MESSAGES   ********

               ***  NONE  ***

**************************************************

Processing wind flow sector   3

 AERMOD Finishes Successfully for FLOWSECTOR stage 2 Summer sector  10

    ********   WARNING MESSAGES   ********

               ***  NONE  ***

**************************************************

Processing wind flow sector   4

 AERMOD Finishes Successfully for FLOWSECTOR stage 2 Summer sector  15

    ********   WARNING MESSAGES   ********

               ***  NONE  ***
```

```
**************************************************

Processing wind flow sector   5


 AERMOD Finishes Successfully for FLOWSECTOR stage 2 Summer sector  20


    ********   WARNING MESSAGES   ********

               ***  NONE  ***

 ****************************************


  Running AERMOD

 Processing Autumn


Processing surface roughness sector  1


**************************************************

Processing wind flow sector   1


 AERMOD Finishes Successfully for FLOWSECTOR stage 2 Autumn sector   0


    ********   WARNING MESSAGES   ********

               ***  NONE  ***


**************************************************

Processing wind flow sector   2
```

```
 AERMOD Finishes Successfully for FLOWSECTOR stage 2 Autumn sector   5

    ********   WARNING MESSAGES   ********

               ***  NONE  ***

**************************************************

Processing wind flow sector   3

 AERMOD Finishes Successfully for FLOWSECTOR stage 2 Autumn sector  10

    ********   WARNING MESSAGES   ********

               ***  NONE  ***

**************************************************

Processing wind flow sector   4

 AERMOD Finishes Successfully for FLOWSECTOR stage 2 Autumn sector  15

    ********   WARNING MESSAGES   ********

               ***  NONE  ***

**************************************************

Processing wind flow sector   5

 AERMOD Finishes Successfully for FLOWSECTOR stage 2 Autumn sector  20
```

```
    ********   WARNING MESSAGES   ********

               ***  NONE  ***


FLOWSECTOR   ended 03/02/21 11:26:59


REFINE       started 03/02/21 11:26:59


 AERMOD Finishes Successfully for REFINE stage 3 Winter sector   0


    ********   WARNING MESSAGES   ********

               ***  NONE  ***


REFINE       ended 03/02/21 11:27:01


 *********************************************
 AERSCREEN Finished Successfully
 With no errors or warnings
 Check log file for details
 *********************************************


 Ending date and time  03/02/21 11:27:03
```

```
 Concentration     Distance Elevation  Diag  Season/Month   Zo sector       Date
 H0     U*     W*  DT/DZ ZICNV ZIMCH  M-O LEN    Z0  BOWEN ALBEDO  REF WS     HT
REF TA     HT
   0.12627E+02         1.00      0.00   0.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.14376E+02        25.00      0.00   0.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.15528E+02        50.00      0.00   0.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
*  0.15639E+02        53.00      0.00   0.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.82807E+01        75.00      0.00   0.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.50573E+01       100.00      0.00   0.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.35487E+01       125.00      0.00   0.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.26886E+01       150.00      0.00   0.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.21388E+01       175.00      0.00   0.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.17615E+01       200.00      0.00   0.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.14862E+01       225.00      0.00   0.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.12787E+01       250.00      0.00   0.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.11174E+01       275.00      0.00   0.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.98807E+00       300.00      0.00   0.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.88296E+00       325.00      0.00   0.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.79605E+00       350.00      0.00   0.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
```

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310.0    2.0
   0.72313E+00       375.00      0.00   0.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.66115E+00       400.00      0.00   0.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.60772E+00       425.00      0.00   0.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.56140E+00       450.00      0.00   0.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.52074E+00       475.00      0.00   0.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.48488E+00       500.00      0.00   0.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.45311E+00       525.00      0.00   0.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.42479E+00       550.00      0.00   0.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.39941E+00       575.00      0.00   0.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.37656E+00       600.00      0.00   0.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.35589E+00       625.00      0.00   0.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.33712E+00       650.00      0.00   0.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.32000E+00       675.00      0.00   5.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.30480E+00       700.00      0.00   0.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.29043E+00       725.00      0.00   0.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.27719E+00       750.00      0.00   0.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.26496E+00       775.00      0.00   0.0        Winter       0-360   10011001
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-1.30 0.043 -9.000 0.020 -999.   21.   6.0 1.000   1.50   0.35   0.50   10.0
310.0   2.0
   0.25363E+00   800.00   0.00   0.0   Winter   0-360   10011001
-1.30 0.043 -9.000 0.020 -999.   21.   6.0 1.000   1.50   0.35   0.50   10.0
310.0   2.0
   0.24312E+00   825.00   0.00   0.0   Winter   0-360   10011001
-1.30 0.043 -9.000 0.020 -999.   21.   6.0 1.000   1.50   0.35   0.50   10.0
310.0   2.0
   0.23334E+00   850.00   0.00   0.0   Winter   0-360   10011001
-1.30 0.043 -9.000 0.020 -999.   21.   6.0 1.000   1.50   0.35   0.50   10.0
310.0   2.0
   0.22423E+00   875.00   0.00   0.0   Winter   0-360   10011001
-1.30 0.043 -9.000 0.020 -999.   21.   6.0 1.000   1.50   0.35   0.50   10.0
310.0   2.0
   0.21571E+00   900.00   0.00   0.0   Winter   0-360   10011001
-1.30 0.043 -9.000 0.020 -999.   21.   6.0 1.000   1.50   0.35   0.50   10.0
310.0   2.0
   0.20774E+00   925.00   0.00   0.0   Winter   0-360   10011001
-1.30 0.043 -9.000 0.020 -999.   21.   6.0 1.000   1.50   0.35   0.50   10.0
310.0   2.0
   0.20026E+00   950.00   0.00   0.0   Winter   0-360   10011001
-1.30 0.043 -9.000 0.020 -999.   21.   6.0 1.000   1.50   0.35   0.50   10.0
310.0   2.0
   0.19324E+00   975.00   0.00   0.0   Winter   0-360   10011001
-1.30 0.043 -9.000 0.020 -999.   21.   6.0 1.000   1.50   0.35   0.50   10.0
310.0   2.0
   0.18664E+00   1000.00   0.00   5.0   Winter   0-360   10011001
-1.30 0.043 -9.000 0.020 -999.   21.   6.0 1.000   1.50   0.35   0.50   10.0
310.0   2.0
   0.18041E+00   1025.00   0.00   0.0   Winter   0-360   10011001
-1.30 0.043 -9.000 0.020 -999.   21.   6.0 1.000   1.50   0.35   0.50   10.0
310.0   2.0
   0.17454E+00   1050.00   0.00   5.0   Winter   0-360   10011001
-1.30 0.043 -9.000 0.020 -999.   21.   6.0 1.000   1.50   0.35   0.50   10.0
310.0   2.0
   0.16899E+00   1075.00   0.00   0.0   Winter   0-360   10011001
-1.30 0.043 -9.000 0.020 -999.   21.   6.0 1.000   1.50   0.35   0.50   10.0
310.0   2.0
   0.16375E+00   1100.00   0.00   0.0   Winter   0-360   10011001
-1.30 0.043 -9.000 0.020 -999.   21.   6.0 1.000   1.50   0.35   0.50   10.0
310.0   2.0
   0.15877E+00   1125.00   0.00   0.0   Winter   0-360   10011001
-1.30 0.043 -9.000 0.020 -999.   21.   6.0 1.000   1.50   0.35   0.50   10.0
310.0   2.0
   0.15406E+00   1150.00   0.00   5.0   Winter   0-360   10011001
-1.30 0.043 -9.000 0.020 -999.   21.   6.0 1.000   1.50   0.35   0.50   10.0
310.0   2.0
   0.14958E+00   1175.00   0.00   0.0   Winter   0-360   10011001
-1.30 0.043 -9.000 0.020 -999.   21.   6.0 1.000   1.50   0.35   0.50   10.0
310.0   2.0

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   0.14532E+00      1200.00      0.00   5.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.14127E+00      1225.00      0.00  20.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.13740E+00      1250.00      0.00   5.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.13372E+00      1275.00      0.00   0.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.13020E+00      1300.00      0.00   0.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.12684E+00      1325.00      0.00   0.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.12363E+00      1350.00      0.00   5.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.12056E+00      1375.00      0.00   0.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.11762E+00      1400.00      0.00   0.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.11479E+00      1425.00      0.00  10.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.11209E+00      1450.00      0.00   0.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.10949E+00      1475.00      0.00   0.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.10700E+00      1500.00      0.00   5.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.10460E+00      1525.00      0.00  10.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.10229E+00      1550.00      0.00   0.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.10007E+00      1575.00      0.00   0.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.97935E-01      1600.00      0.00   5.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
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310.0    2.0
   0.95875E-01      1625.00      0.00  10.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.93889E-01      1650.00      0.00  20.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.91973E-01      1675.00      0.00  10.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.90124E-01      1700.00      0.00  10.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.88339E-01      1725.00      0.00  10.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.86613E-01      1750.00      0.00  10.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.84946E-01      1775.00      0.00  10.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.83333E-01      1800.00      0.00  10.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.81773E-01      1824.99      0.00  15.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.80262E-01      1850.00      0.00  10.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.78799E-01      1875.00      0.00  10.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.77382E-01      1900.00      0.00  10.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.76008E-01      1924.99      0.00   5.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.74676E-01      1950.00      0.00   0.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.73384E-01      1975.00      0.00   5.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.72130E-01      2000.00      0.00  15.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.70912E-01      2025.00      0.00   5.0        Winter       0-360   10011001
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-1.30 0.043 -9.000 0.020 -999.   21.   6.0 1.000   1.50   0.35   0.50   10.0
310.0   2.0
   0.69730E-01   2050.00   0.00 20.0   Winter   0-360   10011001
-1.30 0.043 -9.000 0.020 -999.   21.   6.0 1.000   1.50   0.35   0.50   10.0
310.0   2.0
   0.68582E-01   2075.00   0.00   5.0   Winter   0-360   10011001
-1.30 0.043 -9.000 0.020 -999.   21.   6.0 1.000   1.50   0.35   0.50   10.0
310.0   2.0
   0.67466E-01   2100.00   0.00 15.0   Winter   0-360   10011001
-1.30 0.043 -9.000 0.020 -999.   21.   6.0 1.000   1.50   0.35   0.50   10.0
310.0   2.0
   0.66381E-01   2125.00   0.00   5.0   Winter   0-360   10011001
-1.30 0.043 -9.000 0.020 -999.   21.   6.0 1.000   1.50   0.35   0.50   10.0
310.0   2.0
   0.65326E-01   2150.00   0.00 15.0   Winter   0-360   10011001
-1.30 0.043 -9.000 0.020 -999.   21.   6.0 1.000   1.50   0.35   0.50   10.0
310.0   2.0
   0.64299E-01   2175.00   0.00   5.0   Winter   0-360   10011001
-1.30 0.043 -9.000 0.020 -999.   21.   6.0 1.000   1.50   0.35   0.50   10.0
310.0   2.0
   0.63301E-01   2200.00   0.00 20.0   Winter   0-360   10011001
-1.30 0.043 -9.000 0.020 -999.   21.   6.0 1.000   1.50   0.35   0.50   10.0
310.0   2.0
   0.62328E-01   2224.99   0.00 15.0   Winter   0-360   10011001
-1.30 0.043 -9.000 0.020 -999.   21.   6.0 1.000   1.50   0.35   0.50   10.0
310.0   2.0
   0.61382E-01   2250.00   0.00 15.0   Winter   0-360   10011001
-1.30 0.043 -9.000 0.020 -999.   21.   6.0 1.000   1.50   0.35   0.50   10.0
310.0   2.0
   0.60460E-01   2275.00   0.00   5.0   Winter   0-360   10011001
-1.30 0.043 -9.000 0.020 -999.   21.   6.0 1.000   1.50   0.35   0.50   10.0
310.0   2.0
   0.59561E-01   2300.00   0.00 20.0   Winter   0-360   10011001
-1.30 0.043 -9.000 0.020 -999.   21.   6.0 1.000   1.50   0.35   0.50   10.0
310.0   2.0
   0.58686E-01   2325.00   0.00   5.0   Winter   0-360   10011001
-1.30 0.043 -9.000 0.020 -999.   21.   6.0 1.000   1.50   0.35   0.50   10.0
310.0   2.0
   0.57832E-01   2350.00   0.00   0.0   Winter   0-360   10011001
-1.30 0.043 -9.000 0.020 -999.   21.   6.0 1.000   1.50   0.35   0.50   10.0
310.0   2.0
   0.57000E-01   2375.00   0.00   5.0   Winter   0-360   10011001
-1.30 0.043 -9.000 0.020 -999.   21.   6.0 1.000   1.50   0.35   0.50   10.0
310.0   2.0
   0.56189E-01   2400.00   0.00 15.0   Winter   0-360   10011001
-1.30 0.043 -9.000 0.020 -999.   21.   6.0 1.000   1.50   0.35   0.50   10.0
310.0   2.0
   0.55397E-01   2425.00   0.00 20.0   Winter   0-360   10011001
-1.30 0.043 -9.000 0.020 -999.   21.   6.0 1.000   1.50   0.35   0.50   10.0
310.0   2.0

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   0.54624E-01      2450.00      0.00   0.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.53870E-01      2475.00      0.00   5.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.53134E-01      2500.00      0.00  15.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.52415E-01      2525.00      0.00  15.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.51712E-01      2550.00      0.00   0.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.51026E-01      2575.00      0.00   0.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.50356E-01      2600.00      0.00  20.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.49700E-01      2625.00      0.00   5.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.49059E-01      2650.00      0.00  15.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.48432E-01      2675.00      0.00   0.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.47819E-01      2700.00      0.00  10.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.47220E-01      2725.00      0.00  20.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.46633E-01      2750.00      0.00   0.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.46059E-01      2775.00      0.00  10.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.45497E-01      2800.00      0.00   0.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.44946E-01      2825.00      0.00  10.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.44408E-01      2850.00      0.00   0.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
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310.0    2.0
   0.43880E-01      2875.00      0.00   0.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.43363E-01      2900.00      0.00   5.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.42856E-01      2925.00      0.00   0.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.42360E-01      2950.00      0.00   5.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.41873E-01      2975.00      0.00  10.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.41396E-01      3000.00      0.00   5.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.40929E-01      3025.00      0.00  10.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.40470E-01      3050.00      0.00   0.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.40021E-01      3074.99      0.00  20.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.39579E-01      3100.00      0.00   0.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.39147E-01      3125.00      0.00  10.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.38722E-01      3150.00      0.00   0.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.38305E-01      3174.99      0.00  10.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.37896E-01      3200.00      0.00   5.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.37495E-01      3225.00      0.00  10.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.37101E-01      3250.00      0.00   5.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.36713E-01      3275.00      0.00  20.0        Winter       0-360   10011001
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-1.30 0.043 -9.000 0.020 -999.   21.   6.0 1.000   1.50   0.35   0.50   10.0
310.0   2.0
   0.36333E-01   3300.00   0.00   0.0   Winter   0-360   10011001
-1.30 0.043 -9.000 0.020 -999.   21.   6.0 1.000   1.50   0.35   0.50   10.0
310.0   2.0
   0.35960E-01   3325.00   0.00 15.0   Winter   0-360   10011001
-1.30 0.043 -9.000 0.020 -999.   21.   6.0 1.000   1.50   0.35   0.50   10.0
310.0   2.0
   0.35593E-01   3350.00   0.00   0.0   Winter   0-360   10011001
-1.30 0.043 -9.000 0.020 -999.   21.   6.0 1.000   1.50   0.35   0.50   10.0
310.0   2.0
   0.35233E-01   3375.00   0.00   0.0   Winter   0-360   10011001
-1.30 0.043 -9.000 0.020 -999.   21.   6.0 1.000   1.50   0.35   0.50   10.0
310.0   2.0
   0.34879E-01   3400.00   0.00   5.0   Winter   0-360   10011001
-1.30 0.043 -9.000 0.020 -999.   21.   6.0 1.000   1.50   0.35   0.50   10.0
310.0   2.0
   0.34531E-01   3425.00   0.00   0.0   Winter   0-360   10011001
-1.30 0.043 -9.000 0.020 -999.   21.   6.0 1.000   1.50   0.35   0.50   10.0
310.0   2.0
   0.34189E-01   3450.00   0.00   0.0   Winter   0-360   10011001
-1.30 0.043 -9.000 0.020 -999.   21.   6.0 1.000   1.50   0.35   0.50   10.0
310.0   2.0
   0.33853E-01   3475.00   0.00 20.0   Winter   0-360   10011001
-1.30 0.043 -9.000 0.020 -999.   21.   6.0 1.000   1.50   0.35   0.50   10.0
310.0   2.0
   0.33522E-01   3500.00   0.00   0.0   Winter   0-360   10011001
-1.30 0.043 -9.000 0.020 -999.   21.   6.0 1.000   1.50   0.35   0.50   10.0
310.0   2.0
   0.33197E-01   3525.00   0.00   0.0   Winter   0-360   10011001
-1.30 0.043 -9.000 0.020 -999.   21.   6.0 1.000   1.50   0.35   0.50   10.0
310.0   2.0
   0.32878E-01   3550.00   0.00   0.0   Winter   0-360   10011001
-1.30 0.043 -9.000 0.020 -999.   21.   6.0 1.000   1.50   0.35   0.50   10.0
310.0   2.0
   0.32564E-01   3575.00   0.00   0.0   Winter   0-360   10011001
-1.30 0.043 -9.000 0.020 -999.   21.   6.0 1.000   1.50   0.35   0.50   10.0
310.0   2.0
   0.32254E-01   3600.00   0.00 20.0   Winter   0-360   10011001
-1.30 0.043 -9.000 0.020 -999.   21.   6.0 1.000   1.50   0.35   0.50   10.0
310.0   2.0
   0.31950E-01   3625.00   0.00   0.0   Winter   0-360   10011001
-1.30 0.043 -9.000 0.020 -999.   21.   6.0 1.000   1.50   0.35   0.50   10.0
310.0   2.0
   0.31651E-01   3650.00   0.00   0.0   Winter   0-360   10011001
-1.30 0.043 -9.000 0.020 -999.   21.   6.0 1.000   1.50   0.35   0.50   10.0
310.0   2.0
   0.31357E-01   3675.00   0.00 20.0   Winter   0-360   10011001
-1.30 0.043 -9.000 0.020 -999.   21.   6.0 1.000   1.50   0.35   0.50   10.0
310.0   2.0

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   0.31067E-01      3700.00      0.00   0.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.30783E-01      3724.99      0.00  20.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.30502E-01      3750.00      0.00  15.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.30226E-01      3775.00      0.00   0.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.29954E-01      3800.00      0.00   0.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.29687E-01      3825.00      0.00   5.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.29423E-01      3850.00      0.00   0.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.29164E-01      3875.00      0.00   5.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.28908E-01      3900.00      0.00   0.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.28657E-01      3925.00      0.00   0.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.28409E-01      3950.00      0.00   0.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.28165E-01      3975.00      0.00   5.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.27924E-01      4000.00      0.00  10.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.27687E-01      4025.00      0.00   0.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.27453E-01      4050.00      0.00   0.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.27223E-01      4075.00      0.00   5.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.26996E-01      4100.00      0.00   0.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
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310.0    2.0
   0.26773E-01      4125.00      0.00   0.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.26552E-01      4150.00      0.00   0.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.26335E-01      4175.00      0.00   0.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.26121E-01      4200.00      0.00  10.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.25910E-01      4225.00      0.00   0.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.25701E-01      4250.00      0.00  15.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.25496E-01      4275.00      0.00   0.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.25293E-01      4300.00      0.00   0.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.25093E-01      4325.00      0.00   0.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.24896E-01      4350.00      0.00   0.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.24702E-01      4375.00      0.00   0.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.24510E-01      4400.00      0.00   0.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.24321E-01      4425.00      0.00   5.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.24134E-01      4450.00      0.00   0.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.23950E-01      4475.00      0.00   5.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.23768E-01      4500.00      0.00   0.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.23589E-01      4525.00      0.00   5.0        Winter       0-360   10011001
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-1.30 0.043 -9.000 0.020 -999.   21.   6.0 1.000   1.50   0.35   0.50   10.0
310.0   2.0
   0.23411E-01   4550.00   0.00   0.0   Winter   0-360   10011001
-1.30 0.043 -9.000 0.020 -999.   21.   6.0 1.000   1.50   0.35   0.50   10.0
310.0   2.0
   0.23237E-01   4575.00   0.00   0.0   Winter   0-360   10011001
-1.30 0.043 -9.000 0.020 -999.   21.   6.0 1.000   1.50   0.35   0.50   10.0
310.0   2.0
   0.23064E-01   4600.00   0.00   0.0   Winter   0-360   10011001
-1.30 0.043 -9.000 0.020 -999.   21.   6.0 1.000   1.50   0.35   0.50   10.0
310.0   2.0
   0.22894E-01   4625.00   0.00   0.0   Winter   0-360   10011001
-1.30 0.043 -9.000 0.020 -999.   21.   6.0 1.000   1.50   0.35   0.50   10.0
310.0   2.0
   0.22725E-01   4650.00   0.00   0.0   Winter   0-360   10011001
-1.30 0.043 -9.000 0.020 -999.   21.   6.0 1.000   1.50   0.35   0.50   10.0
310.0   2.0
   0.22559E-01   4675.00   0.00 20.0   Winter   0-360   10011001
-1.30 0.043 -9.000 0.020 -999.   21.   6.0 1.000   1.50   0.35   0.50   10.0
310.0   2.0
   0.22395E-01   4700.00   0.00   0.0   Winter   0-360   10011001
-1.30 0.043 -9.000 0.020 -999.   21.   6.0 1.000   1.50   0.35   0.50   10.0
310.0   2.0
   0.22233E-01   4725.00   0.00   0.0   Winter   0-360   10011001
-1.30 0.043 -9.000 0.020 -999.   21.   6.0 1.000   1.50   0.35   0.50   10.0
310.0   2.0
   0.22073E-01   4750.00   0.00   0.0   Winter   0-360   10011001
-1.30 0.043 -9.000 0.020 -999.   21.   6.0 1.000   1.50   0.35   0.50   10.0
310.0   2.0
   0.21915E-01   4775.00   0.00   0.0   Winter   0-360   10011001
-1.30 0.043 -9.000 0.020 -999.   21.   6.0 1.000   1.50   0.35   0.50   10.0
310.0   2.0
   0.21760E-01   4800.00   0.00   5.0   Winter   0-360   10011001
-1.30 0.043 -9.000 0.020 -999.   21.   6.0 1.000   1.50   0.35   0.50   10.0
310.0   2.0
   0.21605E-01   4825.00   0.00   0.0   Winter   0-360   10011001
-1.30 0.043 -9.000 0.020 -999.   21.   6.0 1.000   1.50   0.35   0.50   10.0
310.0   2.0
   0.21453E-01   4850.00   0.00   0.0   Winter   0-360   10011001
-1.30 0.043 -9.000 0.020 -999.   21.   6.0 1.000   1.50   0.35   0.50   10.0
310.0   2.0
   0.21303E-01   4875.00   0.00   0.0   Winter   0-360   10011001
-1.30 0.043 -9.000 0.020 -999.   21.   6.0 1.000   1.50   0.35   0.50   10.0
310.0   2.0
   0.21154E-01   4900.00   0.00   0.0   Winter   0-360   10011001
-1.30 0.043 -9.000 0.020 -999.   21.   6.0 1.000   1.50   0.35   0.50   10.0
310.0   2.0
   0.21008E-01   4924.99   0.00 15.0   Winter   0-360   10011001
-1.30 0.043 -9.000 0.020 -999.   21.   6.0 1.000   1.50   0.35   0.50   10.0
310.0   2.0

```
   0.20863E-01      4950.00      0.00   5.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.20719E-01      4975.00      0.00   0.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.20578E-01      5000.00      0.00   0.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
```

Start date and time 03/02/21 12:57:30

AERSCREEN 16216

1396 5th Street Operation

1396 5th Street Operation

---------- DATA ENTRY VALIDATION ----------

	METRIC	ENGLISH
** AREADATA **	---	---
Emission Rate:	0.731E-03 g/s	0.580E-02 lb/hr
Area Height:	3.00 meters	9.84 feet
Area Source Length:	105.00 meters	344.49 feet
Area Source Width:	34.00 meters	111.55 feet
Vertical Dimension:	1.50 meters	4.92 feet
Model Mode:	URBAN	
Population:	425097	
Dist to Ambient Air:	1.0 meters	3. feet

** BUILDING DATA **

No Building Downwash Parameters

** TERRAIN DATA **

No Terrain Elevations

Source Base Elevation: 0.0 meters 0.0 feet

Probe distance: 5000. meters 16404. feet

No flagpole receptors

No discrete receptors used

** FUMIGATION DATA **

No fumigation requested

** METEOROLOGY DATA **

Min/Max Temperature: 250.0 / 310.0 K -9.7 / 98.3 Deg F

Minimum Wind Speed: 0.5 m/s

Anemometer Height: 10.000 meters

Dominant Surface Profile: Urban

Dominant Climate Type: Average Moisture

Surface friction velocity (u*): not adjusted

DEBUG OPTION ON

AERSCREEN output file:

2021.03.02_13965thStreet_Operation.out

*** AERSCREEN Run is Ready to Begin

No terrain used, AERMAP will not be run

****

SURFACE CHARACTERISTICS & MAKEMET

Obtaining surface characteristics...

Using AERMET seasonal surface characteristics for Urban with Average Moisture

Season	Albedo	Bo	zo
Winter	0.35	1.50	1.000
Spring	0.14	1.00	1.000
Summer	0.16	2.00	1.000
Autumn	0.18	2.00	1.000

Creating met files aerscreen_01_01.sfc & aerscreen_01_01.pfl

Creating met files aerscreen_02_01.sfc & aerscreen_02_01.pfl

Creating met files aerscreen_03_01.sfc & aerscreen_03_01.pfl

Creating met files aerscreen_04_01.sfc & aerscreen_04_01.pfl

Buildings and/or terrain present or rectangular area source, skipping probe

FLOWSECTOR started 03/02/21 12:58:53

****

Running AERMOD

Processing Winter

Processing surface roughness sector 1

```
**************************************************

Processing wind flow sector   1

 AERMOD Finishes Successfully for FLOWSECTOR stage 2 Winter sector   0

    ********   WARNING MESSAGES   ********

               ***  NONE  ***

**************************************************

Processing wind flow sector   2

 AERMOD Finishes Successfully for FLOWSECTOR stage 2 Winter sector   5

    ********   WARNING MESSAGES   ********

               ***  NONE  ***

**************************************************

Processing wind flow sector   3

 AERMOD Finishes Successfully for FLOWSECTOR stage 2 Winter sector  10

    ********   WARNING MESSAGES   ********

               ***  NONE  ***
```

```
**************************************************

Processing wind flow sector   4

 AERMOD Finishes Successfully for FLOWSECTOR stage 2 Winter sector  15

    ********   WARNING MESSAGES   ********

               ***  NONE  ***

**************************************************

Processing wind flow sector   5

 AERMOD Finishes Successfully for FLOWSECTOR stage 2 Winter sector  20

    ********   WARNING MESSAGES   ********

               ***  NONE  ***

 ****************************************

  Running AERMOD

 Processing Spring

Processing surface roughness sector  1

**************************************************

Processing wind flow sector   1
```

```
 AERMOD Finishes Successfully for FLOWSECTOR stage 2 Spring sector   0

    ********   WARNING MESSAGES   ********

               ***  NONE  ***

**************************************************

Processing wind flow sector   2

 AERMOD Finishes Successfully for FLOWSECTOR stage 2 Spring sector   5

    ********   WARNING MESSAGES   ********

               ***  NONE  ***

**************************************************

Processing wind flow sector   3

 AERMOD Finishes Successfully for FLOWSECTOR stage 2 Spring sector  10

    ********   WARNING MESSAGES   ********

               ***  NONE  ***

**************************************************

Processing wind flow sector   4

 AERMOD Finishes Successfully for FLOWSECTOR stage 2 Spring sector  15
```

```
    ********   WARNING MESSAGES   ********

               ***  NONE  ***


**************************************************

Processing wind flow sector   5


 AERMOD Finishes Successfully for FLOWSECTOR stage 2 Spring sector  20


    ********   WARNING MESSAGES   ********

               ***  NONE  ***

 ****************************************


  Running AERMOD

 Processing Summer


Processing surface roughness sector  1


**************************************************

Processing wind flow sector   1


 AERMOD Finishes Successfully for FLOWSECTOR stage 2 Summer sector   0


    ********   WARNING MESSAGES   ********

               ***  NONE  ***
```

```
**************************************************

Processing wind flow sector   2

 AERMOD Finishes Successfully for FLOWSECTOR stage 2 Summer sector   5

    ********   WARNING MESSAGES   ********

               ***  NONE  ***

**************************************************

Processing wind flow sector   3

 AERMOD Finishes Successfully for FLOWSECTOR stage 2 Summer sector  10

    ********   WARNING MESSAGES   ********

               ***  NONE  ***

**************************************************

Processing wind flow sector   4

 AERMOD Finishes Successfully for FLOWSECTOR stage 2 Summer sector  15

    ********   WARNING MESSAGES   ********

               ***  NONE  ***
```

```
**************************************************

Processing wind flow sector   5


 AERMOD Finishes Successfully for FLOWSECTOR stage 2 Summer sector  20


    ********   WARNING MESSAGES   ********

               ***  NONE  ***

 ****************************************


  Running AERMOD

 Processing Autumn


Processing surface roughness sector  1


**************************************************

Processing wind flow sector   1


 AERMOD Finishes Successfully for FLOWSECTOR stage 2 Autumn sector   0


    ********   WARNING MESSAGES   ********

               ***  NONE  ***


**************************************************

Processing wind flow sector   2
```

```
 AERMOD Finishes Successfully for FLOWSECTOR stage 2 Autumn sector   5

    ********   WARNING MESSAGES   ********

               ***  NONE  ***

**************************************************

Processing wind flow sector   3

 AERMOD Finishes Successfully for FLOWSECTOR stage 2 Autumn sector  10

    ********   WARNING MESSAGES   ********

               ***  NONE  ***

**************************************************

Processing wind flow sector   4

 AERMOD Finishes Successfully for FLOWSECTOR stage 2 Autumn sector  15

    ********   WARNING MESSAGES   ********

               ***  NONE  ***

**************************************************

Processing wind flow sector   5

 AERMOD Finishes Successfully for FLOWSECTOR stage 2 Autumn sector  20
```

```
    ********   WARNING MESSAGES   ********

               ***  NONE  ***


FLOWSECTOR   ended 03/02/21 12:59:01


REFINE       started 03/02/21 12:59:01


 AERMOD Finishes Successfully for REFINE stage 3 Winter sector   0


    ********   WARNING MESSAGES   ********

               ***  NONE  ***


REFINE       ended 03/02/21 12:59:03


 *********************************************
 AERSCREEN Finished Successfully
 With no errors or warnings
 Check log file for details
 *********************************************


 Ending date and time  03/02/21 12:59:04
```

```
 Concentration     Distance Elevation  Diag  Season/Month   Zo sector       Date
 H0     U*     W*  DT/DZ ZICNV ZIMCH  M-O LEN    Z0  BOWEN ALBEDO  REF WS     HT
REF TA     HT
   0.32076E+01         1.00      0.00   0.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.36520E+01        25.00      0.00   0.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.39446E+01        50.00      0.00   0.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
*  0.39729E+01        53.00      0.00   0.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.21036E+01        75.00      0.00   0.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.12847E+01       100.00      0.00   0.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.90150E+00       125.00      0.00   0.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.68300E+00       150.00      0.00   0.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.54331E+00       175.00      0.00   0.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.44748E+00       200.00      0.00   0.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.37753E+00       225.00      0.00   0.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.32484E+00       250.00      0.00   0.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.28386E+00       275.00      0.00   0.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.25100E+00       300.00      0.00   0.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.22430E+00       325.00      0.00   0.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.20222E+00       350.00      0.00   0.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
```

```
310.0    2.0
   0.18370E+00       375.00      0.00   0.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.16795E+00       400.00      0.00   0.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.15438E+00       425.00      0.00   0.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.14261E+00       450.00      0.00   0.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.13229E+00       475.00      0.00   0.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.12318E+00       500.00      0.00   0.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.11511E+00       525.00      0.00   0.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.10791E+00       550.00      0.00   0.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.10147E+00       575.00      0.00   0.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.95660E-01       600.00      0.00   0.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.90409E-01       625.00      0.00   0.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.85639E-01       650.00      0.00   0.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.81291E-01       675.00      0.00   5.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.77430E-01       700.00      0.00   0.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.73778E-01       725.00      0.00   0.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.70415E-01       750.00      0.00   0.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.67308E-01       775.00      0.00   0.0        Winter       0-360   10011001
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-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.64432E-01       800.00      0.00   0.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.61761E-01       825.00      0.00   0.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.59277E-01       850.00      0.00   0.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.56961E-01       875.00      0.00   0.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.54797E-01       900.00      0.00   0.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.52772E-01       925.00      0.00   5.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.50873E-01       950.00      0.00   0.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.49090E-01       975.00      0.00   0.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.47412E-01      1000.00      0.00   5.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.45831E-01      1025.00      0.00   0.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.44340E-01      1050.00      0.00   5.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.42930E-01      1075.00      0.00   0.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.41597E-01      1100.00      0.00   5.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.40334E-01      1125.00      0.00   0.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.39136E-01      1149.99      0.00  15.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.37999E-01      1175.00      0.00  15.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
```

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   0.36916E-01      1200.00      0.00   5.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.35886E-01      1225.00      0.00  20.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.34905E-01      1250.00      0.00   5.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.33969E-01      1275.00      0.00   0.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.33076E-01      1300.00      0.00   5.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.32223E-01      1325.00      0.00  10.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.31407E-01      1350.00      0.00   5.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.30626E-01      1375.00      0.00   0.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.29878E-01      1400.00      0.00   0.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.29162E-01      1425.00      0.00  15.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.28474E-01      1450.00      0.00   5.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.27814E-01      1475.00      0.00   0.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.27181E-01      1500.00      0.00   5.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.26571E-01      1525.00      0.00   0.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.25986E-01      1550.00      0.00   5.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.25422E-01      1575.00      0.00  10.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.24879E-01      1600.00      0.00   0.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
```

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310.0    2.0
   0.24355E-01      1625.00      0.00   0.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.23851E-01      1650.00      0.00   0.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.23364E-01      1675.00      0.00  10.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.22895E-01      1700.00      0.00  10.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.22441E-01      1725.00      0.00  10.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.22003E-01      1750.00      0.00   5.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.21579E-01      1775.00      0.00   0.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.21169E-01      1800.00      0.00   0.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.20773E-01      1824.99      0.00  15.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.20389E-01      1850.00      0.00  10.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.20018E-01      1875.00      0.00  10.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.19658E-01      1900.00      0.00  10.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.19308E-01      1925.00      0.00   0.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.18970E-01      1950.00      0.00   0.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.18642E-01      1975.00      0.00   5.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.18323E-01      2000.00      0.00   0.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.18014E-01      2025.00      0.00   5.0        Winter       0-360   10011001
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-1.30 0.043 -9.000 0.020 -999.   21.   6.0 1.000   1.50   0.35   0.50   10.0
310.0   2.0
   0.17714E-01   2050.00   0.00 20.0   Winter   0-360   10011001
-1.30 0.043 -9.000 0.020 -999.   21.   6.0 1.000   1.50   0.35   0.50   10.0
310.0   2.0
   0.17422E-01   2075.00   0.00   5.0   Winter   0-360   10011001
-1.30 0.043 -9.000 0.020 -999.   21.   6.0 1.000   1.50   0.35   0.50   10.0
310.0   2.0
   0.17139E-01   2100.00   0.00 20.0   Winter   0-360   10011001
-1.30 0.043 -9.000 0.020 -999.   21.   6.0 1.000   1.50   0.35   0.50   10.0
310.0   2.0
   0.16863E-01   2125.00   0.00   0.0   Winter   0-360   10011001
-1.30 0.043 -9.000 0.020 -999.   21.   6.0 1.000   1.50   0.35   0.50   10.0
310.0   2.0
   0.16595E-01   2150.00   0.00   0.0   Winter   0-360   10011001
-1.30 0.043 -9.000 0.020 -999.   21.   6.0 1.000   1.50   0.35   0.50   10.0
310.0   2.0
   0.16334E-01   2175.00   0.00   5.0   Winter   0-360   10011001
-1.30 0.043 -9.000 0.020 -999.   21.   6.0 1.000   1.50   0.35   0.50   10.0
310.0   2.0
   0.16080E-01   2200.00   0.00   0.0   Winter   0-360   10011001
-1.30 0.043 -9.000 0.020 -999.   21.   6.0 1.000   1.50   0.35   0.50   10.0
310.0   2.0
   0.15834E-01   2225.00   0.00   5.0   Winter   0-360   10011001
-1.30 0.043 -9.000 0.020 -999.   21.   6.0 1.000   1.50   0.35   0.50   10.0
310.0   2.0
   0.15593E-01   2250.00   0.00 15.0   Winter   0-360   10011001
-1.30 0.043 -9.000 0.020 -999.   21.   6.0 1.000   1.50   0.35   0.50   10.0
310.0   2.0
   0.15359E-01   2275.00   0.00   5.0   Winter   0-360   10011001
-1.30 0.043 -9.000 0.020 -999.   21.   6.0 1.000   1.50   0.35   0.50   10.0
310.0   2.0
   0.15131E-01   2300.00   0.00   0.0   Winter   0-360   10011001
-1.30 0.043 -9.000 0.020 -999.   21.   6.0 1.000   1.50   0.35   0.50   10.0
310.0   2.0
   0.14908E-01   2325.00   0.00   5.0   Winter   0-360   10011001
-1.30 0.043 -9.000 0.020 -999.   21.   6.0 1.000   1.50   0.35   0.50   10.0
310.0   2.0
   0.14691E-01   2350.00   0.00   0.0   Winter   0-360   10011001
-1.30 0.043 -9.000 0.020 -999.   21.   6.0 1.000   1.50   0.35   0.50   10.0
310.0   2.0
   0.14480E-01   2375.00   0.00   0.0   Winter   0-360   10011001
-1.30 0.043 -9.000 0.020 -999.   21.   6.0 1.000   1.50   0.35   0.50   10.0
310.0   2.0
   0.14274E-01   2400.00   0.00   0.0   Winter   0-360   10011001
-1.30 0.043 -9.000 0.020 -999.   21.   6.0 1.000   1.50   0.35   0.50   10.0
310.0   2.0
   0.14073E-01   2425.00   0.00   0.0   Winter   0-360   10011001
-1.30 0.043 -9.000 0.020 -999.   21.   6.0 1.000   1.50   0.35   0.50   10.0
310.0   2.0

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   0.13876E-01      2450.00      0.00   0.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.13685E-01      2475.00      0.00   0.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.13498E-01      2500.00      0.00  15.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.13315E-01      2525.00      0.00   0.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.13137E-01      2550.00      0.00  15.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.12962E-01      2575.00      0.00   0.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.12792E-01      2600.00      0.00   0.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.12625E-01      2625.00      0.00  20.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.12463E-01      2650.00      0.00  15.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.12303E-01      2675.00      0.00   0.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.12148E-01      2700.00      0.00   0.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.11995E-01      2725.00      0.00   0.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.11846E-01      2750.00      0.00  10.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.11700E-01      2775.00      0.00   0.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.11558E-01      2800.00      0.00   0.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.11418E-01      2825.00      0.00   0.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.11281E-01      2850.00      0.00   0.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
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310.0    2.0
   0.11147E-01      2875.00      0.00   0.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.11016E-01      2900.00      0.00   0.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.10887E-01      2925.00      0.00   0.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.10761E-01      2950.00      0.00   0.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.10637E-01      2975.00      0.00   0.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.10516E-01      3000.00      0.00   5.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.10397E-01      3025.00      0.00   0.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.10281E-01      3050.00      0.00   0.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.10167E-01      3074.99      0.00  20.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.10054E-01      3100.00      0.00   0.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.99446E-02      3125.00      0.00  10.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.98367E-02      3150.00      0.00  10.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.97308E-02      3174.99      0.00  10.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.96269E-02      3199.99      0.00  10.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.95249E-02      3225.00      0.00  10.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.94248E-02      3250.00      0.00  10.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.93264E-02      3275.00      0.00  20.0        Winter       0-360   10011001
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-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.92299E-02      3300.00      0.00   5.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.91350E-02      3325.00      0.00  15.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.90419E-02      3350.00      0.00   5.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.89503E-02      3375.00      0.00   0.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.88604E-02      3400.00      0.00   5.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.87720E-02      3425.00      0.00   0.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.86851E-02      3450.00      0.00   5.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.85997E-02      3475.00      0.00  15.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.85158E-02      3500.00      0.00  20.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.84332E-02      3525.00      0.00   0.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.83520E-02      3550.00      0.00   0.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.82722E-02      3575.00      0.00  15.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.81937E-02      3600.00      0.00  20.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.81165E-02      3625.00      0.00  15.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.80405E-02      3650.00      0.00   5.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.79657E-02      3675.00      0.00   0.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
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   0.78922E-02      3700.00      0.00  20.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.78198E-02      3724.99      0.00  20.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.77485E-02      3750.00      0.00  15.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.76784E-02      3775.00      0.00   0.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.76094E-02      3800.00      0.00   0.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.75414E-02      3825.00      0.00   5.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.74745E-02      3849.99      0.00  15.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.74086E-02      3875.00      0.00   5.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.73437E-02      3900.00      0.00  15.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.72797E-02      3925.00      0.00   5.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.72168E-02      3950.00      0.00   0.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.71547E-02      3975.00      0.00   5.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.70936E-02      4000.00      0.00  15.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.70334E-02      4025.00      0.00   5.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.69741E-02      4050.00      0.00   0.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.69156E-02      4075.00      0.00   5.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.68580E-02      4100.00      0.00  10.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
```

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310.0    2.0
   0.68012E-02      4125.00      0.00   5.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.67452E-02      4149.99      0.00  20.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.66900E-02      4175.00      0.00   0.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.66355E-02      4200.00      0.00   0.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.65819E-02      4225.00      0.00   0.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.65290E-02      4250.00      0.00  10.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.64768E-02      4275.00      0.00   5.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.64253E-02      4300.00      0.00  10.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.63746E-02      4325.00      0.00   5.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.63245E-02      4350.00      0.00  10.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.62751E-02      4375.00      0.00   5.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.62264E-02      4400.00      0.00   0.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.61783E-02      4425.00      0.00  10.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.61309E-02      4449.99      0.00  10.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.60841E-02      4475.00      0.00   0.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.60379E-02      4500.00      0.00  10.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.59923E-02      4525.00      0.00   0.0        Winter       0-360   10011001
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-1.30 0.043 -9.000 0.020 -999.   21.   6.0 1.000   1.50   0.35   0.50   10.0
310.0   2.0
   0.59473E-02   4550.00   0.00   0.0   Winter   0-360   10011001
-1.30 0.043 -9.000 0.020 -999.   21.   6.0 1.000   1.50   0.35   0.50   10.0
310.0   2.0
   0.59029E-02   4575.00   0.00   5.0   Winter   0-360   10011001
-1.30 0.043 -9.000 0.020 -999.   21.   6.0 1.000   1.50   0.35   0.50   10.0
310.0   2.0
   0.58590E-02   4600.00   0.00   0.0   Winter   0-360   10011001
-1.30 0.043 -9.000 0.020 -999.   21.   6.0 1.000   1.50   0.35   0.50   10.0
310.0   2.0
   0.58157E-02   4625.00   0.00   0.0   Winter   0-360   10011001
-1.30 0.043 -9.000 0.020 -999.   21.   6.0 1.000   1.50   0.35   0.50   10.0
310.0   2.0
   0.57730E-02   4650.00   0.00   0.0   Winter   0-360   10011001
-1.30 0.043 -9.000 0.020 -999.   21.   6.0 1.000   1.50   0.35   0.50   10.0
310.0   2.0
   0.57308E-02   4675.00   0.00 20.0   Winter   0-360   10011001
-1.30 0.043 -9.000 0.020 -999.   21.   6.0 1.000   1.50   0.35   0.50   10.0
310.0   2.0
   0.56892E-02   4700.00   0.00   0.0   Winter   0-360   10011001
-1.30 0.043 -9.000 0.020 -999.   21.   6.0 1.000   1.50   0.35   0.50   10.0
310.0   2.0
   0.56480E-02   4725.00   0.00   0.0   Winter   0-360   10011001
-1.30 0.043 -9.000 0.020 -999.   21.   6.0 1.000   1.50   0.35   0.50   10.0
310.0   2.0
   0.56074E-02   4750.00   0.00   0.0   Winter   0-360   10011001
-1.30 0.043 -9.000 0.020 -999.   21.   6.0 1.000   1.50   0.35   0.50   10.0
310.0   2.0
   0.55673E-02   4775.00   0.00   0.0   Winter   0-360   10011001
-1.30 0.043 -9.000 0.020 -999.   21.   6.0 1.000   1.50   0.35   0.50   10.0
310.0   2.0
   0.55277E-02   4800.00   0.00   5.0   Winter   0-360   10011001
-1.30 0.043 -9.000 0.020 -999.   21.   6.0 1.000   1.50   0.35   0.50   10.0
310.0   2.0
   0.54885E-02   4825.00   0.00   0.0   Winter   0-360   10011001
-1.30 0.043 -9.000 0.020 -999.   21.   6.0 1.000   1.50   0.35   0.50   10.0
310.0   2.0
   0.54499E-02   4850.00   0.00   5.0   Winter   0-360   10011001
-1.30 0.043 -9.000 0.020 -999.   21.   6.0 1.000   1.50   0.35   0.50   10.0
310.0   2.0
   0.54117E-02   4875.00   0.00   0.0   Winter   0-360   10011001
-1.30 0.043 -9.000 0.020 -999.   21.   6.0 1.000   1.50   0.35   0.50   10.0
310.0   2.0
   0.53739E-02   4900.00   0.00   0.0   Winter   0-360   10011001
-1.30 0.043 -9.000 0.020 -999.   21.   6.0 1.000   1.50   0.35   0.50   10.0
310.0   2.0
   0.53366E-02   4925.00   0.00   0.0   Winter   0-360   10011001
-1.30 0.043 -9.000 0.020 -999.   21.   6.0 1.000   1.50   0.35   0.50   10.0
310.0   2.0

```
   0.52998E-02      4950.00      0.00   5.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.52634E-02      4975.00      0.00   0.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
   0.52274E-02      5000.00      0.00   5.0        Winter       0-360   10011001
-1.30  0.043 -9.000  0.020 -999.   21.      6.0 1.000   1.50   0.35    0.50   10.0
310.0    2.0
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Education

Ph.D. Soil Chemistry, University of Washington, 1999. Dissertation on volatile organic compound filtration.

M.S. Environmental Science, U.C. Berkeley, 1995. Thesis on organic waste economics.

B.A. Environmental Studies, U.C. Santa Barbara, 1991. Thesis on wastewater treatment.

Professional Experience

Dr. Rosenfeld has over 25 years' experience conducting environmental investigations and risk assessments for evaluating impacts to human health, property, and ecological receptors. His expertise focuses on the fate and transport of environmental contaminants, human health risk, exposure assessment, and ecological restoration. Dr. Rosenfeld has evaluated and modeled emissions from unconventional oil drilling operations, oil spills, landfills, boilers and incinerators, process stacks, storage tanks, confined animal feeding operations, and many other industrial and agricultural sources. His project experience ranges from monitoring and modeling of pollution sources to evaluating impacts of pollution on workers at industrial facilities and residents in surrounding communities.

Dr. Rosenfeld has investigated and designed remediation programs and risk assessments for contaminated sites containing lead, heavy metals, mold, bacteria, particulate matter, petroleum hydrocarbons, chlorinated solvents, pesticides, radioactive waste, dioxins and furans, semi- and volatile organic compounds, PCBs, PAHs, perchlorate, asbestos, per- and poly-fluoroalkyl substances (PFOA/PFOS), unusual polymers, fuel oxygenates (MTBE), among other pollutants. Dr. Rosenfeld also has experience evaluating greenhouse gas emissions from various projects and is an expert on the assessment of odors from industrial and agricultural sites, as well as the evaluation of odor nuisance impacts and technologies for abatement of odorous emissions. As a principal scientist at SWAPE, Dr. Rosenfeld directs air dispersion modeling and exposure assessments. He has served as an expert witness and testified about pollution sources causing nuisance and/or personal injury at dozens of sites and has testified as an expert witness on more than ten cases involving exposure to air contaminants from industrial sources.

Professional History:

Soil Water Air Protection Enterprise (SWAPE); 2003 to present; Principal and Founding Partner
UCLA School of Public Health; 2007 to 2011; Lecturer (Assistant Researcher)
UCLA School of Public Health; 2003 to 2006; Adjunct Professor
UCLA Environmental Science and Engineering Program; 2002-2004; Doctoral Intern Coordinator
UCLA Institute of the Environment, 2001-2002; Research Associate
Komex H_2O Science, 2001 to 2003; Senior Remediation Scientist
National Groundwater Association, 2002-2004; Lecturer
San Diego State University, 1999-2001; Adjunct Professor
Anteon Corp., San Diego, 2000-2001; Remediation Project Manager
Ogden (now Amec), San Diego, 2000-2000; Remediation Project Manager
Bechtel, San Diego, California, 1999 – 2000; Risk Assessor
King County, Seattle, 1996 – 1999; Scientist
James River Corp., Washington, 1995-96; Scientist
Big Creek Lumber, Davenport, California, 1995; Scientist
Plumas Corp., California and USFS, Tahoe 1993-1995; Scientist
Peace Corps and World Wildlife Fund, St. Kitts, West Indies, 1991-1993; Scientist

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Hensley A.R., Scott, A., **Rosenfeld P.E.,** Clark, J.J.J. (August 21 – 25, 2006). Dioxin Containing Attic Dust And Human Blood Samples Collected Near A Former Wood Treatment Facility. *The 26th International Symposium on Halogenated Persistent Organic Pollutants – DIOXIN2006*. Lecture conducted from Radisson SAS Scandinavia Hotel in Oslo Norway.

Hensley A.R., Scott, A., **Rosenfeld P.E.,** Clark, J.J.J. (November 4-8, 2006). Dioxin Containing Attic Dust And Human Blood Samples Collected Near A Former Wood Treatment Facility. *APHA 134 Annual Meeting & Exposition.* Lecture conducted from Boston Massachusetts.

Paul Rosenfeld Ph.D. (October 24-25, 2005). Fate, Transport and Persistence of PFOA and Related Chemicals. Mealey's C8/PFOA. *Science, Risk & Litigation Conference.* Lecture conducted from The Rittenhouse Hotel, Philadelphia, PA.

Paul Rosenfeld Ph.D. (September 19, 2005). Brominated Flame Retardants in Groundwater: Pathways to Human Ingestion, *Toxicology and Remediation PEMA Emerging Contaminant Conference*. Lecture conducted from Hilton Hotel, Irvine California.

Paul Rosenfeld Ph.D. (September 19, 2005). Fate, Transport, Toxicity, And Persistence of 1,2,3-TCP. *PEMA Emerging Contaminant Conference.* Lecture conducted from Hilton Hotel in Irvine, California.

Paul Rosenfeld Ph.D. (September 26-27, 2005). Fate, Transport and Persistence of PDBEs. *Mealey's Groundwater Conference.* Lecture conducted from Ritz Carlton Hotel, Marina Del Ray, California.

Paul Rosenfeld Ph.D. (June 7-8, 2005). Fate, Transport and Persistence of PFOA and Related Chemicals. *International Society of Environmental Forensics: Focus On Emerging Contaminants*. Lecture conducted from Sheraton Oceanfront Hotel, Virginia Beach, Virginia.

Paul Rosenfeld Ph.D. (July 21-22, 2005). Fate Transport, Persistence and Toxicology of PFOA and Related Perfluorochemicals. *2005 National Groundwater Association Ground Water And Environmental Law Conference*. Lecture conducted from Wyndham Baltimore Inner Harbor, Baltimore Maryland.

Paul Rosenfeld Ph.D. (July 21-22, 2005). Brominated Flame Retardants in Groundwater: Pathways to Human Ingestion, Toxicology and Remediation. *2005 National Groundwater Association Ground Water and Environmental Law Conference.* Lecture conducted from Wyndham Baltimore Inner Harbor, Baltimore Maryland.

Paul Rosenfeld, Ph.D. and James Clark Ph.D. and Rob Hesse R.G. (May 5-6, 2004). Tert-butyl Alcohol Liability and Toxicology, A National Problem and Unquantified Liability. *National Groundwater Association. Environmental Law Conference*. Lecture conducted from Congress Plaza Hotel, Chicago Illinois.

Paul Rosenfeld, Ph.D. (March 2004). Perchlorate Toxicology. *Meeting of the American Groundwater Trust*. Lecture conducted from Phoenix Arizona.

Hagemann, M.F., **Paul Rosenfeld, Ph.D.** and Rob Hesse (2004). Perchlorate Contamination of the Colorado River. *Meeting of tribal representatives*. Lecture conducted from Parker, AZ.

Paul Rosenfeld, Ph.D. (April 7, 2004). A National Damage Assessment Model For PCE and Dry Cleaners. *Drycleaner Symposium. California Ground Water Association*. Lecture conducted from Radison Hotel, Sacramento, California.

Rosenfeld, P. E., Grey, M., (June 2003) Two stage biofilter for biosolids composting odor control. *Seventh International In Situ And On Site Bioremediation Symposium Battelle Conference* Orlando, FL.

Paul Rosenfeld, Ph.D. and James Clark Ph.D. (February 20-21, 2003) Understanding Historical Use, Chemical Properties, Toxicity and Regulatory Guidance of 1,4 Dioxane. *National Groundwater Association. Southwest Focus Conference. Water Supply and Emerging Contaminants*.. Lecture conducted from Hyatt Regency Phoenix Arizona.

Paul Rosenfeld, Ph.D. (February 6-7, 2003). Underground Storage Tank Litigation and Remediation. *California CUPA Forum*. Lecture conducted from Marriott Hotel, Anaheim California.

Paul Rosenfeld, Ph.D. (October 23, 2002) Underground Storage Tank Litigation and Remediation. *EPA Underground Storage Tank Roundtable*. Lecture conducted from Sacramento California.

Rosenfeld, P.E. and Suffet, M. (October 7- 10, 2002). Understanding Odor from Compost, *Wastewater and Industrial Processes. Sixth Annual Symposium On Off Flavors in the Aquatic Environment. International Water Association*. Lecture conducted from Barcelona Spain.

Rosenfeld, P.E. and Suffet, M. (October 7- 10, 2002). Using High Carbon Wood Ash to Control Compost Odor. *Sixth Annual Symposium On Off Flavors in the Aquatic Environment. International Water Association*. Lecture conducted from Barcelona Spain.

Rosenfeld, P.E. and Grey, M. A. (September 22-24, 2002). Biocycle Composting For Coastal Sage Restoration. *Northwest Biosolids Management Association*. Lecture conducted from Vancouver Washington..

Rosenfeld, P.E. and Grey, M. A. (November 11-14, 2002). Using High-Carbon Wood Ash to Control Odor at a Green Materials Composting Facility. *Soil Science Society Annual Conferenc*e. Lecture conducted from Indianapolis, Maryland.

Rosenfeld. P.E. (September 16, 2000). Two stage biofilter for biosolids composting odor control. *Water Environment Federation.* Lecture conducted from Anaheim California.

Rosenfeld. P.E. (October 16, 2000). Wood ash and biofilter control of compost odor. *Biofest.* Lecture conducted from Ocean Shores, California.

Rosenfeld, P.E. (2000). Bioremediation Using Organic Soil Amendments. *California Resource Recovery Association*. Lecture conducted from Sacramento California.

Rosenfeld, P.E., C.L. Henry, R. Harrison. (1998). Oat and Grass Seed Germination and Nitrogen and Sulfur Emissions Following Biosolids Incorporation With High-Carbon Wood-Ash. *Water Environment Federation 12th Annual Residuals and Biosolids Management Conference Proceedings*. Lecture conducted from Bellevue Washington.

Rosenfeld, P.E., and C.L. Henry. (1999). An evaluation of ash incorporation with biosolids for odor reduction. *Soil Science Society of America*. Lecture conducted from Salt Lake City Utah.

Rosenfeld, P.E., C.L. Henry, R. Harrison. (1998). Comparison of Microbial Activity and Odor Emissions from Three Different Biosolids Applied to Forest Soil. *Brown and Caldwell.* Lecture conducted from Seattle Washington.

Rosenfeld, P.E., C.L. Henry. (1998). Characterization, Quantification, and Control of Odor Emissions from Biosolids Application To Forest Soil. *Biofest.* Lecture conducted from Lake Chelan, Washington.

Rosenfeld, P.E, C.L. Henry, R. Harrison. (1998). Oat and Grass Seed Germination and Nitrogen and Sulfur Emissions Following Biosolids Incorporation With High-Carbon Wood-Ash. Water Environment Federation 12th Annual Residuals and Biosolids Management Conference Proceedings. Lecture conducted from Bellevue Washington.

Rosenfeld, P.E., C.L. Henry, R. B. Harrison, and R. Dills. (1997). Comparison of Odor Emissions From Three Different Biosolids Applied to Forest Soil. *Soil Science Society of America*. Lecture conducted from Anaheim California.

Teaching Experience:

UCLA Department of Environmental Health (Summer 2003 through 20010) Taught Environmental Health Science 100 to students, including undergrad, medical doctors, public health professionals and nurses. Course focused on the health effects of environmental contaminants.

National Ground Water Association, Successful Remediation Technologies. Custom Course in Sante Fe, New Mexico. May 21, 2002. Focused on fate and transport of fuel contaminants associated with underground storage tanks.

National Ground Water Association; Successful Remediation Technologies Course in Chicago Illinois. April 1, 2002. Focused on fate and transport of contaminants associated with Superfund and RCRA sites.

California Integrated Waste Management Board, April and May, 2001. Alternative Landfill Caps Seminar in San Diego, Ventura, and San Francisco. Focused on both prescriptive and innovative landfill cover design.

UCLA Department of Environmental Engineering, February 5, 2002. Seminar on Successful Remediation Technologies focusing on Groundwater Remediation.

University Of Washington, Soil Science Program, Teaching Assistant for several courses including: Soil Chemistry, Organic Soil Amendments, and Soil Stability.

U.C. Berkeley, Environmental Science Program Teaching Assistant for Environmental Science 10.

Academic Grants Awarded:

California Integrated Waste Management Board. $41,000 grant awarded to UCLA Institute of the Environment. Goal: To investigate effect of high carbon wood ash on volatile organic emissions from compost. 2001.

Synagro Technologies, Corona California: $10,000 grant awarded to San Diego State University.
Goal: investigate effect of biosolids for restoration and remediation of degraded coastal sage soils. 2000.

King County, Department of Research and Technology, Washington State. $100,000 grant awarded to University of Washington: Goal: To investigate odor emissions from biosolids application and the effect of polymers and ash on VOC emissions. 1998.

Northwest Biosolids Management Association, Washington State. $20,000 grant awarded to investigate effect of polymers and ash on VOC emissions from biosolids. 1997.

James River Corporation, Oregon: $10,000 grant was awarded to investigate the success of genetically engineered Poplar trees with resistance to round-up. 1996.

United State Forest Service, Tahoe National Forest: $15,000 grant was awarded to investigating fire ecology of the Tahoe National Forest. 1995.

Kellogg Foundation, Washington D.C. $500 grant was awarded to construct a large anaerobic digester on St. Kitts in West Indies. 1993

Deposition and/or Trial Testimony:

In the United States District Court For The Southern District of Illinois
Duarte et al, *Plaintiffs,* vs. United States Metals Refining Company et. al. *Defendant.*
Case No.: 3:19-cv-00302-SMY-GCS
Rosenfeld Deposition. 2-19-2020

In the Circuit Court of Jackson County, Missouri
Karen Cornwell, *Plaintiff,* vs. Marathon Petroleum, LP, *Defendant.*
Case No.: 1716-CV10006
Rosenfeld Deposition. 8-30-2019

In the United States District Court For The District of New Jersey
Duarte et al, *Plaintiffs,* vs. United States Metals Refining Company et. al. *Defendant.*
Case No.: 2:17-cv-01624-ES-SCM
Rosenfeld Deposition. 6-7-2019

In the United States District Court of Southern District of Texas Galveston Division
M/T Carla Maersk, *Plaintiffs,* vs. Conti 168., Schiffahrts-GMBH & Co. Bulker KG MS "Conti Perdido" *Defendant.*
Case No.: 3:15-CV-00106 consolidated with 3:15-CV-00237
Rosenfeld Deposition. 5-9-2019

In The Superior Court of the State of California In And For The County Of Los Angeles – Santa Monica
Carole-Taddeo-Bates et al., vs. Ifran Khan et al., Defendants
Case No.: No. BC615636
Rosenfeld Deposition, 1-26-2019

In The Superior Court of the State of California In And For The County Of Los Angeles – Santa Monica
The San Gabriel Valley Council of Governments et al. vs El Adobe Apts. Inc. et al., Defendants
Case No.: No. BC646857
Rosenfeld Deposition, 10-6-2018; Trial 3-7-19

In United States District Court For The District of Colorado
Bells et al. Plaintiff vs. The 3M Company et al., Defendants
Case: No 1:16-cv-02531-RBJ
Rosenfeld Deposition, 3-15-2018 and 4-3-2018

In The District Court Of Regan County, Texas, 112th Judicial District
Phillip Bales et al., Plaintiff vs. Dow Agrosciences, LLC, et al., Defendants
Cause No 1923
Rosenfeld Deposition, 11-17-2017

In The Superior Court of the State of California In And For The County Of Contra Costa
Simons et al., Plaintiffs vs. Chevron Corporation, et al., Defendants
Cause No C12-01481
Rosenfeld Deposition, 11-20-2017

In The Circuit Court Of The Twentieth Judicial Circuit, St Clair County, Illinois
Martha Custer et al., Plaintiff vs. Cerro Flow Products, Inc., Defendants
Case No.: No. 0i9-L-2295
Rosenfeld Deposition, 8-23-2017

In United States District Court For The Southern District of Mississippi
Guy Manuel vs. The BP Exploration et al., Defendants
Case: No 1:19-cv-00315-RHW
Rosenfeld Deposition, 4-22-2020

In The Superior Court of the State of California, For The County of Los Angeles
Warrn Gilbert and Penny Gilber, Plaintiff vs. BMW of North America LLC
Case No.: LC102019 (c/w BC582154)
Rosenfeld Deposition, 8-16-2017, Trail 8-28-2018

In the Northern District Court of Mississippi, Greenville Division
Brenda J. Cooper, et al., *Plaintiffs,* vs. Meritor Inc., et al., *Defendants*
Case Number: 4:16-cv-52-DMB-JVM
Rosenfeld Deposition: July 2017

In The Superior Court of the State of Washington, County of Snohomish
Michael Davis and Julie Davis et al., Plaintiff vs. Cedar Grove Composting Inc., Defendants
Case No.: No. 13-2-03987-5
Rosenfeld Deposition, February 2017
Trial, March 2017

In The Superior Court of the State of California, County of Alameda
Charles Spain., Plaintiff vs. Thermo Fisher Scientific, et al., Defendants
Case No.: RG14711115
Rosenfeld Deposition, September 2015

In The Iowa District Court In And For Poweshiek County
Russell D. Winburn, et al., Plaintiffs vs. Doug Hoksbergen, et al., Defendants
Case No.: LALA002187
Rosenfeld Deposition, August 2015

In The Iowa District Court For Wapello County
Jerry Dovico, et al., Plaintiffs vs. Valley View Sine LLC, et al., Defendants
Law No,: LALA105144 - Division A
Rosenfeld Deposition, August 2015

In The Iowa District Court For Wapello County
Doug Pauls, et al.,, et al., Plaintiffs vs. Richard Warren, et al., Defendants
Law No,: LALA105144 - Division A
Rosenfeld Deposition, August 2015

In The Circuit Court of Ohio County, West Virginia
Robert Andrews, et al. v. Antero, et al.
Civil Action N0. 14-C-30000
Rosenfeld Deposition, June 2015

In The Third Judicial District County of Dona Ana, New Mexico
Betty Gonzalez, et al. Plaintiffs vs. Del Oro Dairy, Del Oro Real Estate LLC, Jerry Settles and Deward DeRuyter, Defendants
Rosenfeld Deposition: July 2015

In The Iowa District Court For Muscatine County
Laurie Freeman et. al. Plaintiffs vs. Grain Processing Corporation, Defendant
Case No 4980
Rosenfeld Deposition: May 2015

SWAPE Technical Consultation, Data Analysis and Litigation Support for the Environment

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Matthew F. Hagemann, P.G., C.Hg., QSD, QSP

Geologic and Hydrogeologic Characterization
Investigation and Remediation Strategies
Litigation Support and Testifying Expert
Industrial Stormwater Compliance
CEQA Review

Education:

M.S. Degree, Geology, California State University Los Angeles, Los Angeles, CA, 1984.
B.A. Degree, Geology, Humboldt State University, Arcata, CA, 1982.

Professional Certifications:

California Professional Geologist
California Certified Hydrogeologist
Qualified SWPPP Developer and Practitioner

Professional Experience:

Matt has 30 years of experience in environmental policy, contaminant assessment and remediation, stormwater compliance, and CEQA review. He spent nine years with the U.S. EPA in the RCRA and Superfund programs and served as EPA's Senior Science Policy Advisor in the Western Regional Office where he identified emerging threats to groundwater from perchlorate and MTBE. While with EPA, Matt also served as a Senior Hydrogeologist in the oversight of the assessment of seven major military facilities undergoing base closure. He led numerous enforcement actions under provisions of the Resource Conservation and Recovery Act (RCRA) and directed efforts to improve hydrogeologic characterization and water quality monitoring. For the past 15 years, as a founding partner with SWAPE, Matt has developed extensive client relationships and has managed complex projects that include consultation as an expert witness and a regulatory specialist, and a manager of projects ranging from industrial stormwater compliance to CEQA review of impacts from hazardous waste, air quality and greenhouse gas emissions.

Positions Matt has held include:

- Founding Partner, Soil/Water/Air Protection Enterprise (SWAPE) (2003 – present);
- Geology Instructor, Golden West College, 2010 – 2104, 2017;
- Senior Environmental Analyst, Komex H2O Science, Inc. (2000 -- 2003);

- Executive Director, Orange Coast Watch (2001 – 2004);
- Senior Science Policy Advisor and Hydrogeologist, U.S. Environmental Protection Agency (1989–1998);
- Hydrogeologist, National Park Service, Water Resources Division (1998 – 2000);
- Adjunct Faculty Member, San Francisco State University, Department of Geosciences (1993 – 1998);
- Instructor, College of Marin, Department of Science (1990 – 1995);
- Geologist, U.S. Forest Service (1986 – 1998); and
- Geologist, Dames & Moore (1984 – 1986).

Senior Regulatory and Litigation Support Analyst:

With SWAPE, Matt's responsibilities have included:

- Lead analyst and testifying expert in the review of over 300 environmental impact reports and negative declarations since 2003 under CEQA that identify significant issues with regard to hazardous waste, water resources, water quality, air quality, greenhouse gas emissions, and geologic hazards. Make recommendations for additional mitigation measures to lead agencies at the local and county level to include additional characterization of health risks and implementation of protective measures to reduce worker exposure to hazards from toxins and Valley Fever.
- Stormwater analysis, sampling and best management practice evaluation at more than 150 industrial facilities.
- Expert witness on numerous cases including, for example, perfluorooctanoic acid (PFOA) contamination of groundwater, MTBE litigation, air toxins at hazards at a school, CERCLA compliance in assessment and remediation, and industrial stormwater contamination.
- Technical assistance and litigation support for vapor intrusion concerns.
- Lead analyst and testifying expert in the review of environmental issues in license applications for large solar power plants before the California Energy Commission.
- Manager of a project to evaluate numerous formerly used military sites in the western U.S.
- Manager of a comprehensive evaluation of potential sources of perchlorate contamination in Southern California drinking water wells.
- Manager and designated expert for litigation support under provisions of Proposition 65 in the review of releases of gasoline to sources drinking water at major refineries and hundreds of gas stations throughout California.

With Komex H2O Science Inc., Matt's duties included the following:

- Senior author of a report on the extent of perchlorate contamination that was used in testimony by the former U.S. EPA Administrator and General Counsel.
- Senior researcher in the development of a comprehensive, electronically interactive chronology of MTBE use, research, and regulation.
- Senior researcher in the development of a comprehensive, electronically interactive chronology of perchlorate use, research, and regulation.
- Senior researcher in a study that estimates nationwide costs for MTBE remediation and drinking water treatment, results of which were published in newspapers nationwide and in testimony against provisions of an energy bill that would limit liability for oil companies.
- Research to support litigation to restore drinking water supplies that have been contaminated by MTBE in California and New York.

- Expert witness testimony in a case of oil production-related contamination in Mississippi.
- Lead author for a multi-volume remedial investigation report for an operating school in Los Angeles that met strict regulatory requirements and rigorous deadlines.
- Development of strategic approaches for cleanup of contaminated sites in consultation with clients and regulators.

Executive Director:

As Executive Director with Orange Coast Watch, Matt led efforts to restore water quality at Orange County beaches from multiple sources of contamination including urban runoff and the discharge of wastewater. In reporting to a Board of Directors that included representatives from leading Orange County universities and businesses, Matt prepared issue papers in the areas of treatment and disinfection of wastewater and control of the discharge of grease to sewer systems. Matt actively participated in the development of countywide water quality permits for the control of urban runoff and permits for the discharge of wastewater. Matt worked with other nonprofits to protect and restore water quality, including Surfrider, Natural Resources Defense Council and Orange County CoastKeeper as well as with business institutions including the Orange County Business Council.

Hydrogeology:

As a Senior Hydrogeologist with the U.S. Environmental Protection Agency, Matt led investigations to characterize and cleanup closing military bases, including Mare Island Naval Shipyard, Hunters Point Naval Shipyard, Treasure Island Naval Station, Alameda Naval Station, Moffett Field, Mather Army Airfield, and Sacramento Army Depot. Specific activities were as follows:

- Led efforts to model groundwater flow and contaminant transport, ensured adequacy of monitoring networks, and assessed cleanup alternatives for contaminated sediment, soil, and groundwater.
- Initiated a regional program for evaluation of groundwater sampling practices and laboratory analysis at military bases.
- Identified emerging issues, wrote technical guidance, and assisted in policy and regulation development through work on four national U.S. EPA workgroups, including the Superfund Groundwater Technical Forum and the Federal Facilities Forum.

At the request of the State of Hawaii, Matt developed a methodology to determine the vulnerability of groundwater to contamination on the islands of Maui and Oahu. He used analytical models and a GIS to show zones of vulnerability, and the results were adopted and published by the State of Hawaii and County of Maui.

As a hydrogeologist with the EPA Groundwater Protection Section, Matt worked with provisions of the Safe Drinking Water Act and NEPA to prevent drinking water contamination. Specific activities included the following:

- Received an EPA Bronze Medal for his contribution to the development of national guidance for the protection of drinking water.
- Managed the Sole Source Aquifer Program and protected the drinking water of two communities through designation under the Safe Drinking Water Act. He prepared geologic reports, conducted

public hearings, and responded to public comments from residents who were very concerned about the impact of designation.

- Reviewed a number of Environmental Impact Statements for planned major developments, including large hazardous and solid waste disposal facilities, mine reclamation, and water transfer.

Matt served as a hydrogeologist with the RCRA Hazardous Waste program. Duties were as follows:

- Supervised the hydrogeologic investigation of hazardous waste sites to determine compliance with Subtitle C requirements.
- Reviewed and wrote "part B" permits for the disposal of hazardous waste.
- Conducted RCRA Corrective Action investigations of waste sites and led inspections that formed the basis for significant enforcement actions that were developed in close coordination with U.S. EPA legal counsel.
- Wrote contract specifications and supervised contractor's investigations of waste sites.

With the National Park Service, Matt directed service-wide investigations of contaminant sources to prevent degradation of water quality, including the following tasks:

- Applied pertinent laws and regulations including CERCLA, RCRA, NEPA, NRDA, and the Clean Water Act to control military, mining, and landfill contaminants.
- Conducted watershed-scale investigations of contaminants at parks, including Yellowstone and Olympic National Park.
- Identified high-levels of perchlorate in soil adjacent to a national park in New Mexico and advised park superintendent on appropriate response actions under CERCLA.
- Served as a Park Service representative on the Interagency Perchlorate Steering Committee, a national workgroup.
- Developed a program to conduct environmental compliance audits of all National Parks while serving on a national workgroup.
- Co-authored two papers on the potential for water contamination from the operation of personal watercraft and snowmobiles, these papers serving as the basis for the development of nation-wide policy on the use of these vehicles in National Parks.
- Contributed to the Federal Multi-Agency Source Water Agreement under the Clean Water Action Plan.

Policy:

Served senior management as the Senior Science Policy Advisor with the U.S. Environmental Protection Agency, Region 9.

Activities included the following:

- Advised the Regional Administrator and senior management on emerging issues such as the potential for the gasoline additive MTBE and ammonium perchlorate to contaminate drinking water supplies.
- Shaped EPA's national response to these threats by serving on workgroups and by contributing to guidance, including the Office of Research and Development publication, Oxygenates in Water: Critical Information and Research Needs.
- Improved the technical training of EPA's scientific and engineering staff.
- Earned an EPA Bronze Medal for representing the region's 300 scientists and engineers in negotiations with the Administrator and senior management to better integrate scientific

principles into the policy-making process.
- Established national protocol for the peer review of scientific documents.

Geology:

With the U.S. Forest Service, Matt led investigations to determine hillslope stability of areas proposed for timber harvest in the central Oregon Coast Range. Specific activities were as follows:

- Mapped geology in the field, and used aerial photographic interpretation and mathematical models to determine slope stability.
- Coordinated his research with community members who were concerned with natural resource protection.
- Characterized the geology of an aquifer that serves as the sole source of drinking water for the city of Medford, Oregon.

As a consultant with Dames and Moore, Matt led geologic investigations of two contaminated sites (later listed on the Superfund NPL) in the Portland, Oregon, area and a large hazardous waste site in eastern Oregon. Duties included the following:

- Supervised year-long effort for soil and groundwater sampling.
- Conducted aquifer tests.
- Investigated active faults beneath sites proposed for hazardous waste disposal.

Teaching:

From 1990 to 1998, Matt taught at least one course per semester at the community college and university levels:

- At San Francisco State University, held an adjunct faculty position and taught courses in environmental geology, oceanography (lab and lecture), hydrogeology, and groundwater contamination.
- Served as a committee member for graduate and undergraduate students.
- Taught courses in environmental geology and oceanography at the College of Marin.

Matt is currently a part time geology instructor at Golden West College in Huntington Beach, California where he taught from 2010 to 2014 and in 2017.

Invited Testimony, Reports, Papers and Presentations:

Hagemann, M.F., 2008. Disclosure of Hazardous Waste Issues under CEQA. Presentation to the Public Environmental Law Conference, Eugene, Oregon.

Hagemann, M.F., 2008. Disclosure of Hazardous Waste Issues under CEQA. Invited presentation to U.S. EPA Region 9, San Francisco, California.

Hagemann, M.F., 2005. Use of Electronic Databases in Environmental Regulation, Policy Making and Public Participation. Brownfields 2005, Denver, Coloradao.

Hagemann, M.F., 2004. Perchlorate Contamination of the Colorado River and Impacts to Drinking Water in Nevada and the Southwestern U.S. Presentation to a meeting of the American Groundwater Trust, Las Vegas, NV (served on conference organizing committee).

Hagemann, M.F., 2004. Invited testimony to a California Senate committee hearing on air toxins at schools in Southern California, Los Angeles.

Brown, A., Farrow, J., Gray, A. and **Hagemann, M.**, 2004. An Estimate of Costs to Address MTBE Releases from Underground Storage Tanks and the Resulting Impact to Drinking Water Wells. Presentation to the Ground Water and Environmental Law Conference, National Groundwater Association.

Hagemann, M.F., 2004. Perchlorate Contamination of the Colorado River and Impacts to Drinking Water in Arizona and the Southwestern U.S. Presentation to a meeting of the American Groundwater Trust, Phoenix, AZ (served on conference organizing committee).

Hagemann, M.F., 2003. Perchlorate Contamination of the Colorado River and Impacts to Drinking Water in the Southwestern U.S. Invited presentation to a special committee meeting of the National Academy of Sciences, Irvine, CA.

Hagemann, M.F., 2003. Perchlorate Contamination of the Colorado River. Invited presentation to a tribal EPA meeting, Pechanga, CA.

Hagemann, M.F., 2003. Perchlorate Contamination of the Colorado River. Invited presentation to a meeting of tribal repesentatives, Parker, AZ.

Hagemann, M.F., 2003. Impact of Perchlorate on the Colorado River and Associated Drinking Water Supplies. Invited presentation to the Inter-Tribal Meeting, Torres Martinez Tribe.

Hagemann, M.F., 2003. The Emergence of Perchlorate as a Widespread Drinking Water Contaminant. Invited presentation to the U.S. EPA Region 9.

Hagemann, M.F., 2003. A Deductive Approach to the Assessment of Perchlorate Contamination. Invited presentation to the California Assembly Natural Resources Committee.

Hagemann, M.F., 2003. Perchlorate: A Cold War Legacy in Drinking Water. Presentation to a meeting of the National Groundwater Association.

Hagemann, M.F., 2002. From Tank to Tap: A Chronology of MTBE in Groundwater. Presentation to a meeting of the National Groundwater Association.

Hagemann, M.F., 2002. A Chronology of MTBE in Groundwater and an Estimate of Costs to Address Impacts to Groundwater. Presentation to the annual meeting of the Society of Environmental Journalists.

Hagemann, M.F., 2002. An Estimate of the Cost to Address MTBE Contamination in Groundwater (and Who Will Pay). Presentation to a meeting of the National Groundwater Association.

Hagemann, M.F., 2002. An Estimate of Costs to Address MTBE Releases from Underground Storage Tanks and the Resulting Impact to Drinking Water Wells. Presentation to a meeting of the U.S. EPA and State Underground Storage Tank Program managers.

Hagemann, M.F., 2001. From Tank to Tap: A Chronology of MTBE in Groundwater. Unpublished report.

Hagemann, M.F., 2001. Estimated Cleanup Cost for MTBE in Groundwater Used as Drinking Water. Unpublished report.

Hagemann, M.F., 2001. Estimated Costs to Address MTBE Releases from Leaking Underground Storage Tanks. Unpublished report.

Hagemann, M.F., and VanMouwerik, M., 1999. Potential Water Quality Concerns Related to Snowmobile Usage. Water Resources Division, National Park Service, Technical Report.

VanMouwerik, M. and **Hagemann, M.F**. 1999, Water Quality Concerns Related to Personal Watercraft Usage. Water Resources Division, National Park Service, Technical Report.

Hagemann, M.F., 1999, Is Dilution the Solution to Pollution in National Parks? The George Wright Society Biannual Meeting, Asheville, North Carolina.

Hagemann, M.F., 1997, The Potential for MTBE to Contaminate Groundwater. U.S. EPA Superfund Groundwater Technical Forum Annual Meeting, Las Vegas, Nevada.

Hagemann, M.F., and Gill, M., 1996, Impediments to Intrinsic Remediation, Moffett Field Naval Air Station, Conference on Intrinsic Remediation of Chlorinated Hydrocarbons, Salt Lake City.

Hagemann, M.F., Fukunaga, G.L., 1996, The Vulnerability of Groundwater to Anthropogenic Contaminants on the Island of Maui, Hawaii. Hawaii Water Works Association Annual Meeting, Maui, October 1996.

Hagemann, M. F., Fukanaga, G. L., 1996, Ranking Groundwater Vulnerability in Central Oahu, Hawaii. Proceedings, Geographic Information Systems in Environmental Resources Management, Air and Waste Management Association Publication VIP-61.

Hagemann, M.F., 1994. Groundwater Characterization and Cleanup at Closing Military Bases in California. Proceedings, California Groundwater Resources Association Meeting.

Hagemann, M.F. and Sabol, M.A., 1993. Role of the U.S. EPA in the High Plains States Groundwater Recharge Demonstration Program. Proceedings, Sixth Biennial Symposium on the Artificial Recharge of Groundwater.

Hagemann, M.F., 1993. U.S. EPA Policy on the Technical Impracticability of the Cleanup of DNAPL-contaminated Groundwater. California Groundwater Resources Association Meeting.

Hagemann, M.F., 1992. Dense Nonaqueous Phase Liquid Contamination of Groundwater: An Ounce of Prevention... Proceedings, Association of Engineering Geologists Annual Meeting, v. 35.

Other Experience:

Selected as subject matter expert for the California Professional Geologist licensing examinations, 2009-2011.